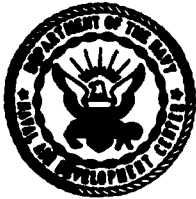


**AD-A259 074**



2

Report No. NADC-91124-60



**CARRIER LANDING PARAMETERS FROM SURVEY  
45, FLEET AND TRAINING COMMAND AIRCRAFT  
LANDING ABOARD USS ENTERPRISE CVN-65  
(APPENDICES B THROUGH R)**

Richard P. Micklos  
Air Vehicle and Crew Systems Technology Department (Code 6042)  
NAVAL AIR DEVELOPMENT CENTER  
Warminster, PA 18974-5000

**1 DECEMBER 1991**

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**A** **DEC 11 1992**

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**Task No. 06000002**  
**Work Unit No. 181004**  
**Program Element No. OMN**

*Approved for Public Release, Distribution is Unlimited*

Prepared for:  
NAVAL AIR SYSTEMS COMMAND (AIR-5302)  
Washington, DC 20361-0001

**92-31263**



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# APPENDIX B

## F-14A AIRCRAFT

### DAY CARRIER LANDINGS

DTIC QUALITY INSPECTED 4

USS ENTERPRISE  
CVN-65

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DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
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Frequency and Probability Distributions,  
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MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -27.85 KNOTS (14.32 METRES/SEC)

A3-.38

S-3.39 KNOTS (1.74 METRES/SEC)

A4-1.88

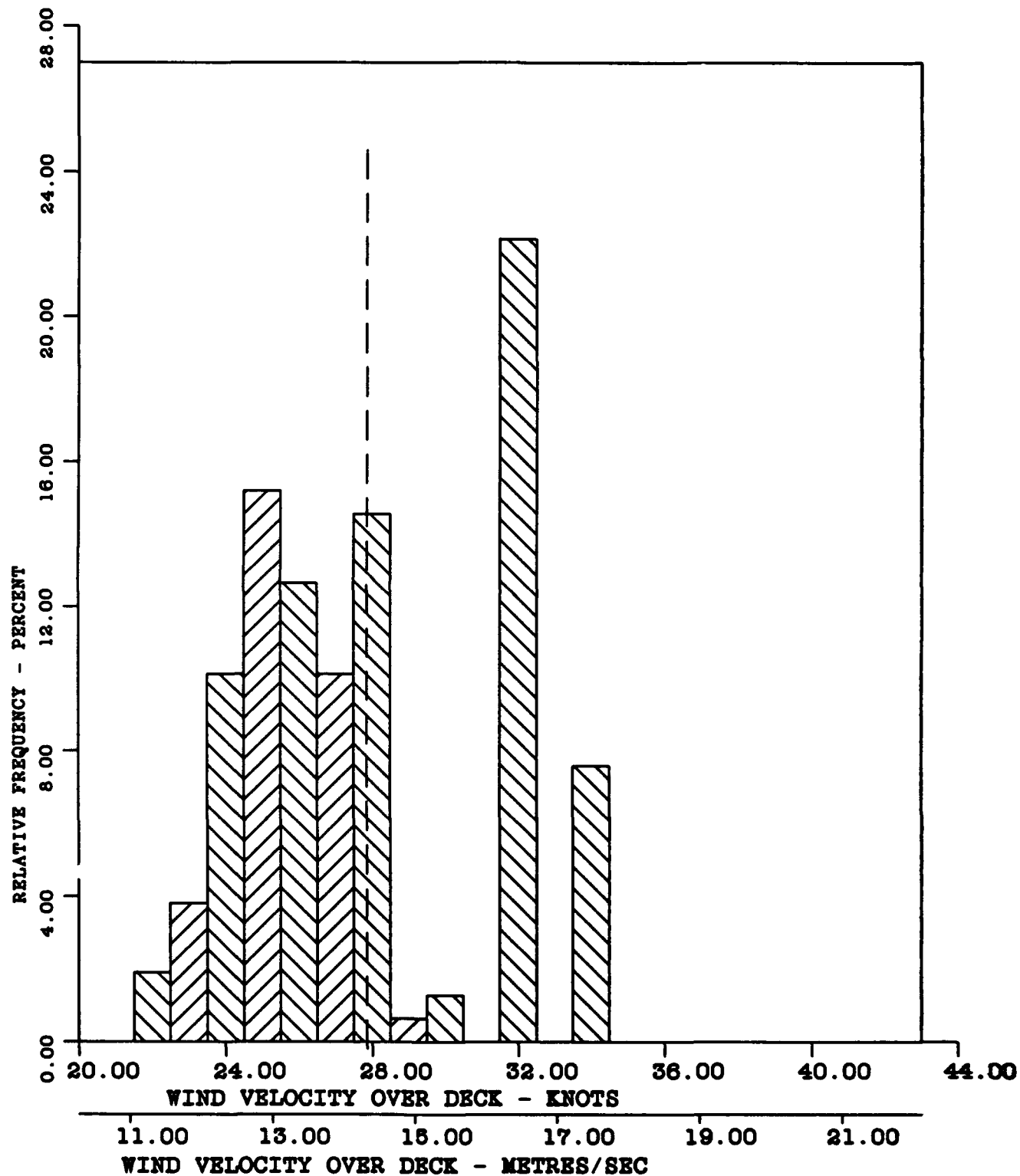


FIGURE B-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -27.85 KNOTS (14.32 METRES/SEC)

A3-.38

S-3.39 KNOTS (1.74 METRES/SEC)

A4-1.88

CURVE FITTED - PEARSON TYPE III

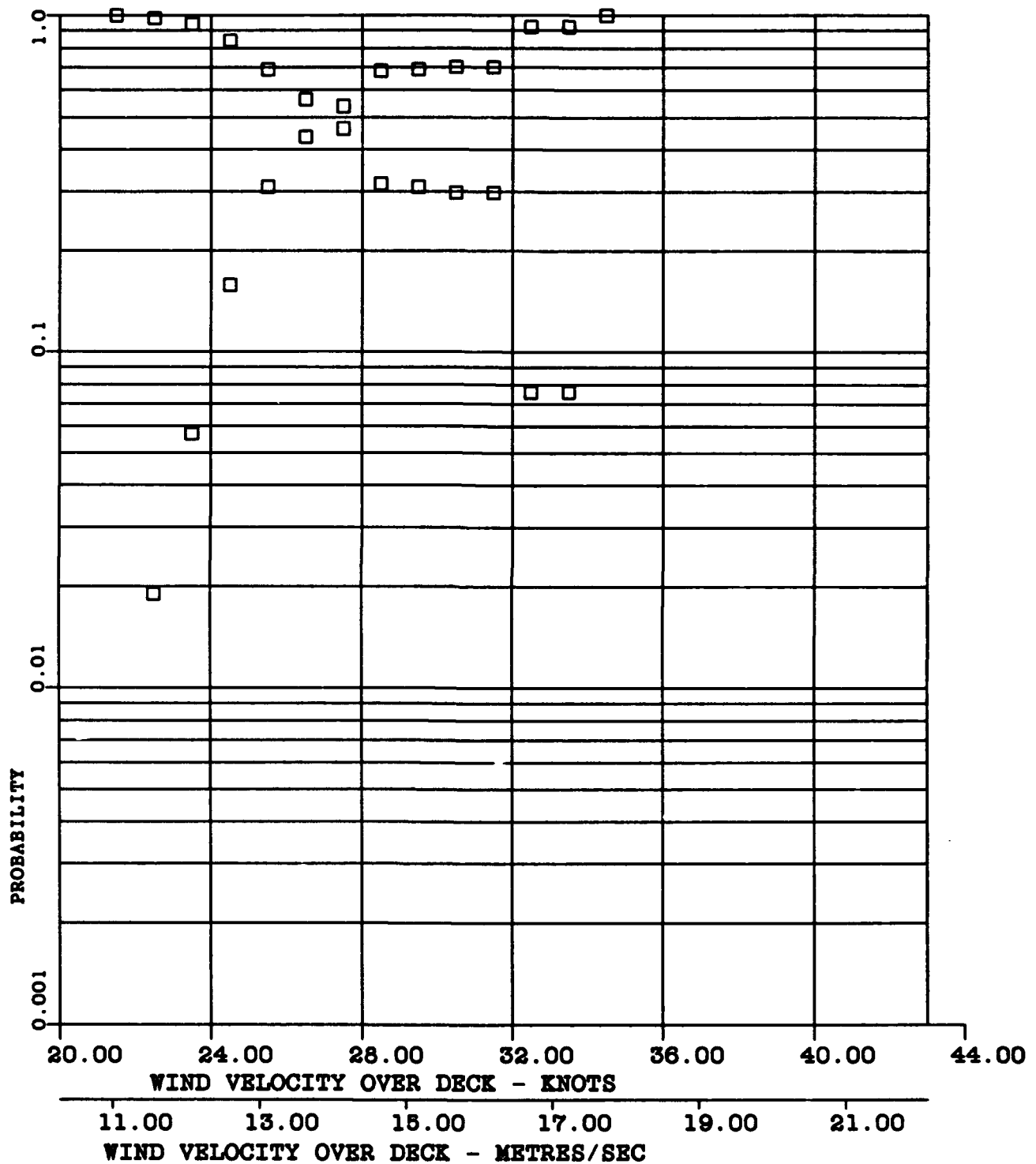


FIGURE B-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

PRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -140.43 KNOTS (72.24 METRES/SEC)

A3--.01

S-4.03 KNOTS (2.07 METRES/SEC)

A4-2.79

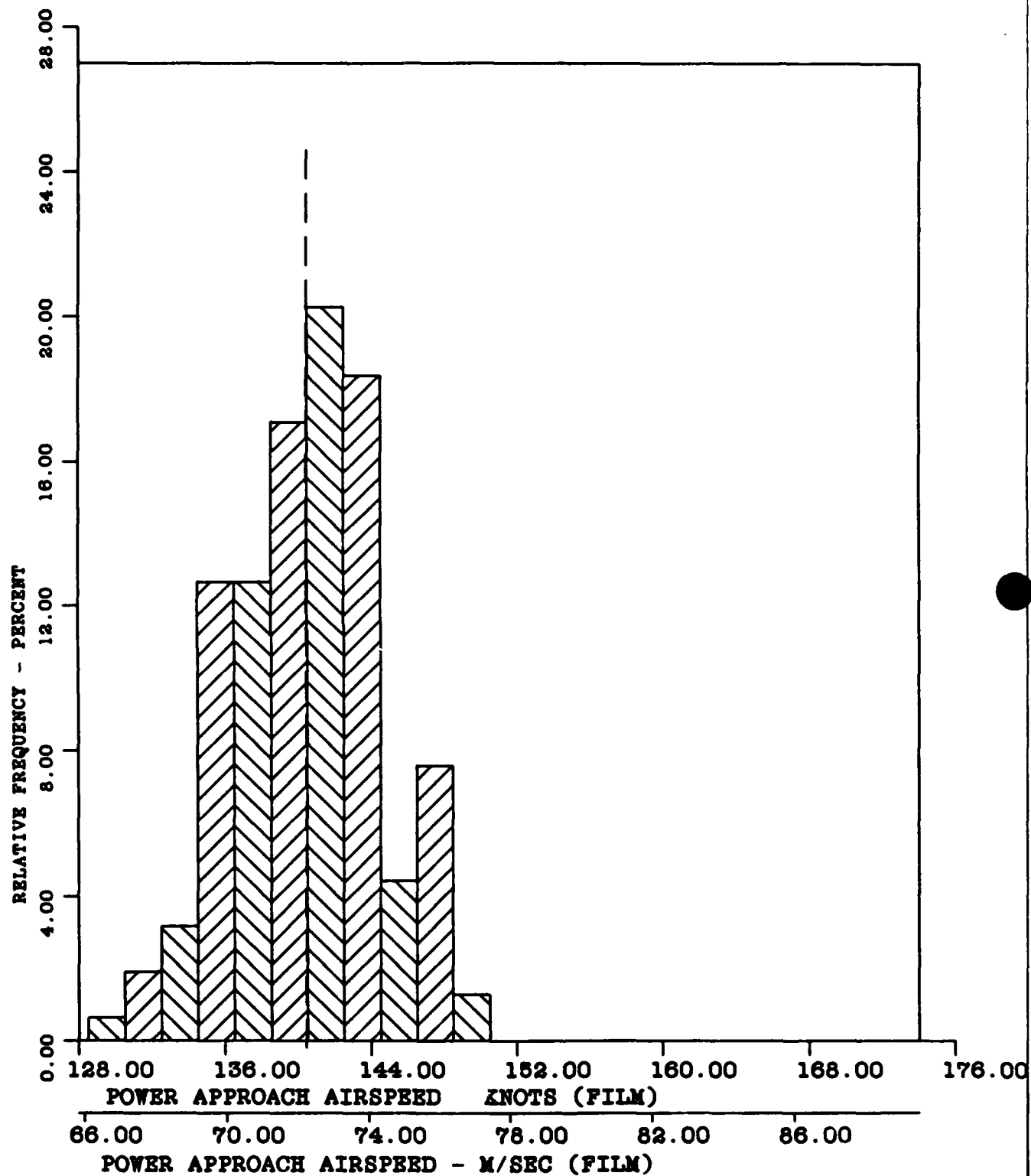


FIGURE B-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -140.43 KNOTS (72.24 METRES/SEC)

A3--.01

S=4.03 KNOTS (2.07 METRES/SEC)

A4=2.79

CURVE FITTED - NORMAL

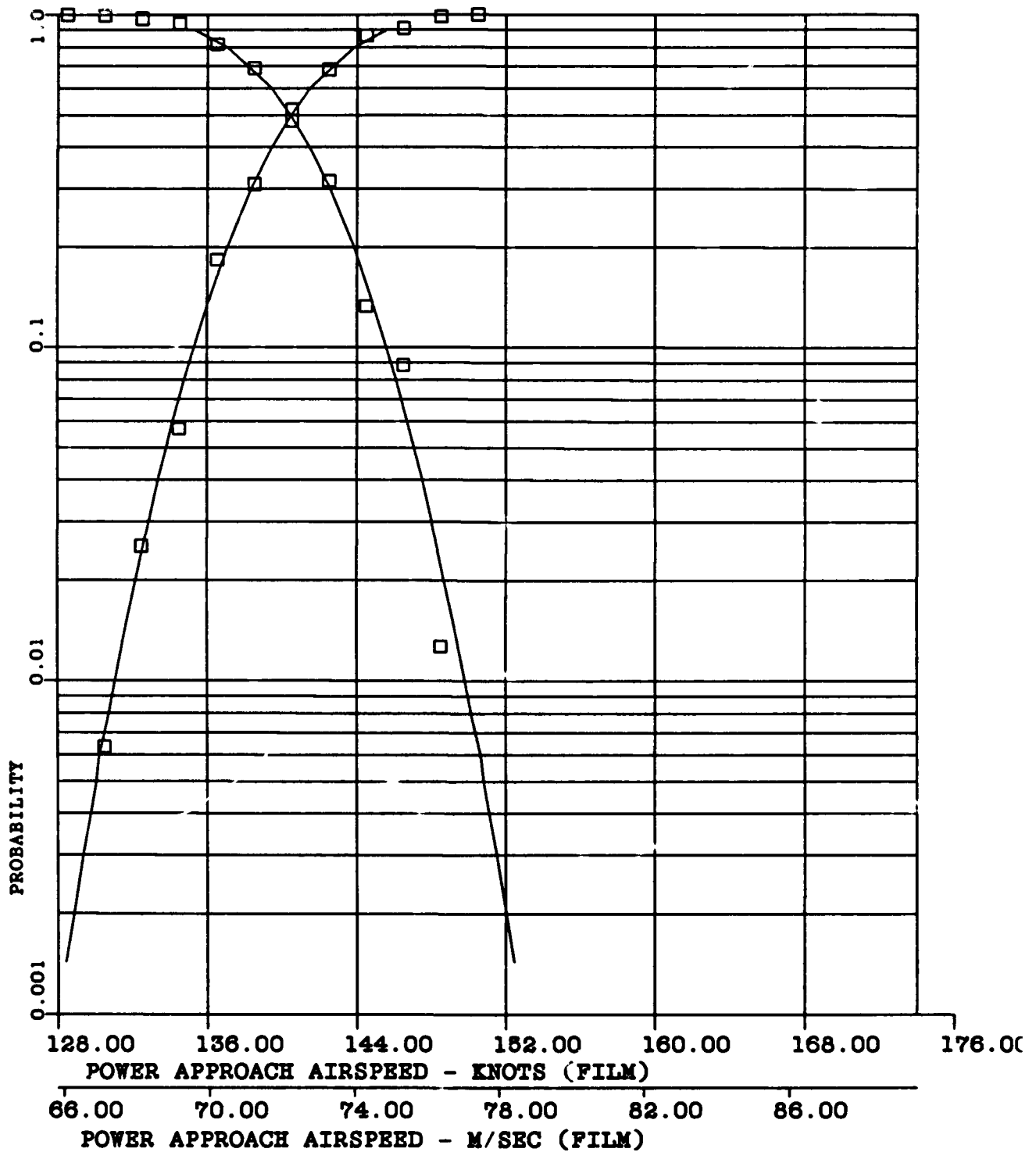


FIGURE B-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -15.36 FEET (4.68 METRES)

S-3.51 FEET (1.07 METRES)

A3-.14

A4-3.19

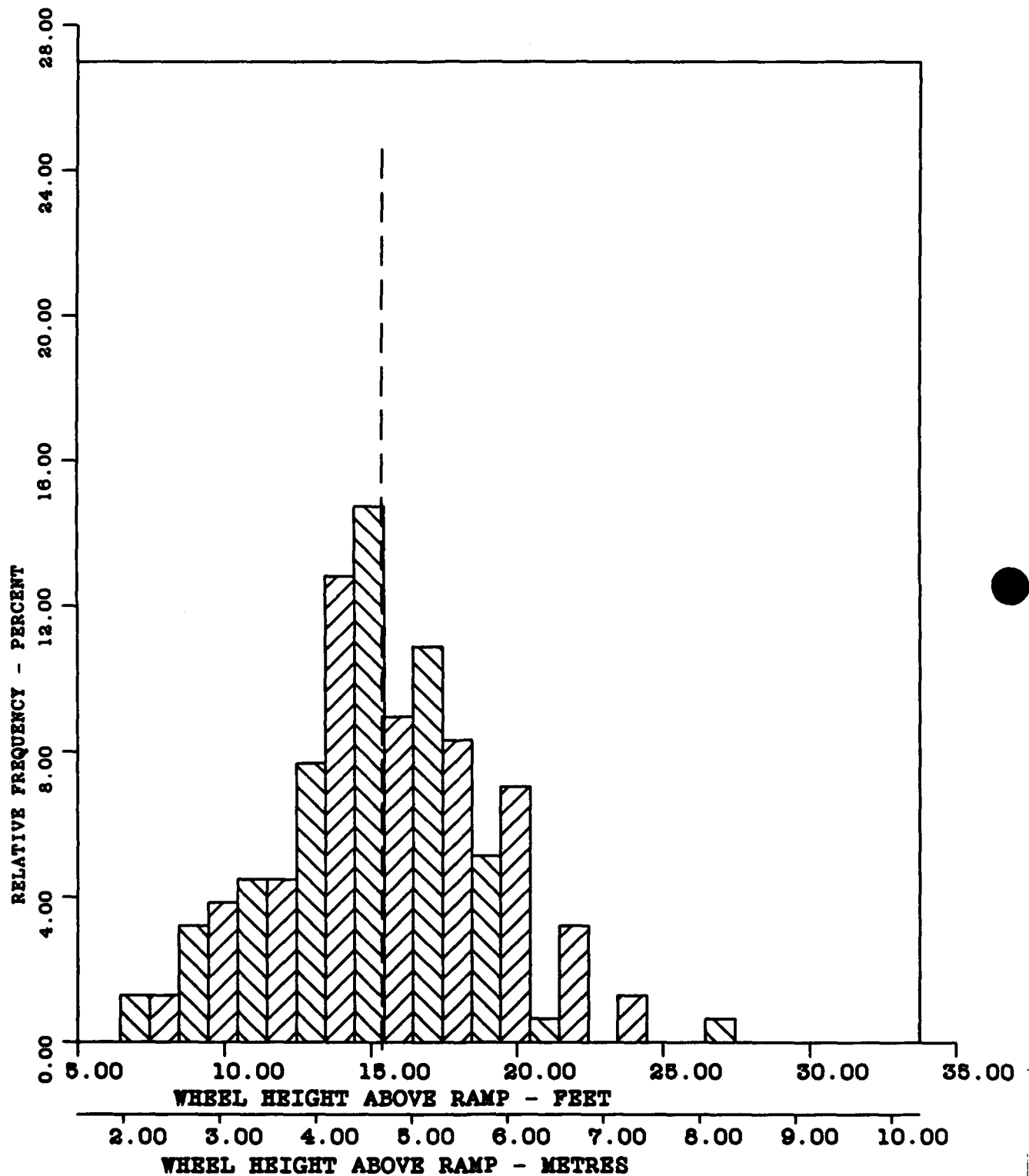


FIGURE B-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=156

 $\bar{X}$ =15.36 FEET (4.68 METRES)

A3=.14

S=3.51 FEET (1.07 METRES)

A4=3.19

CURVE FITTED - NORMAL

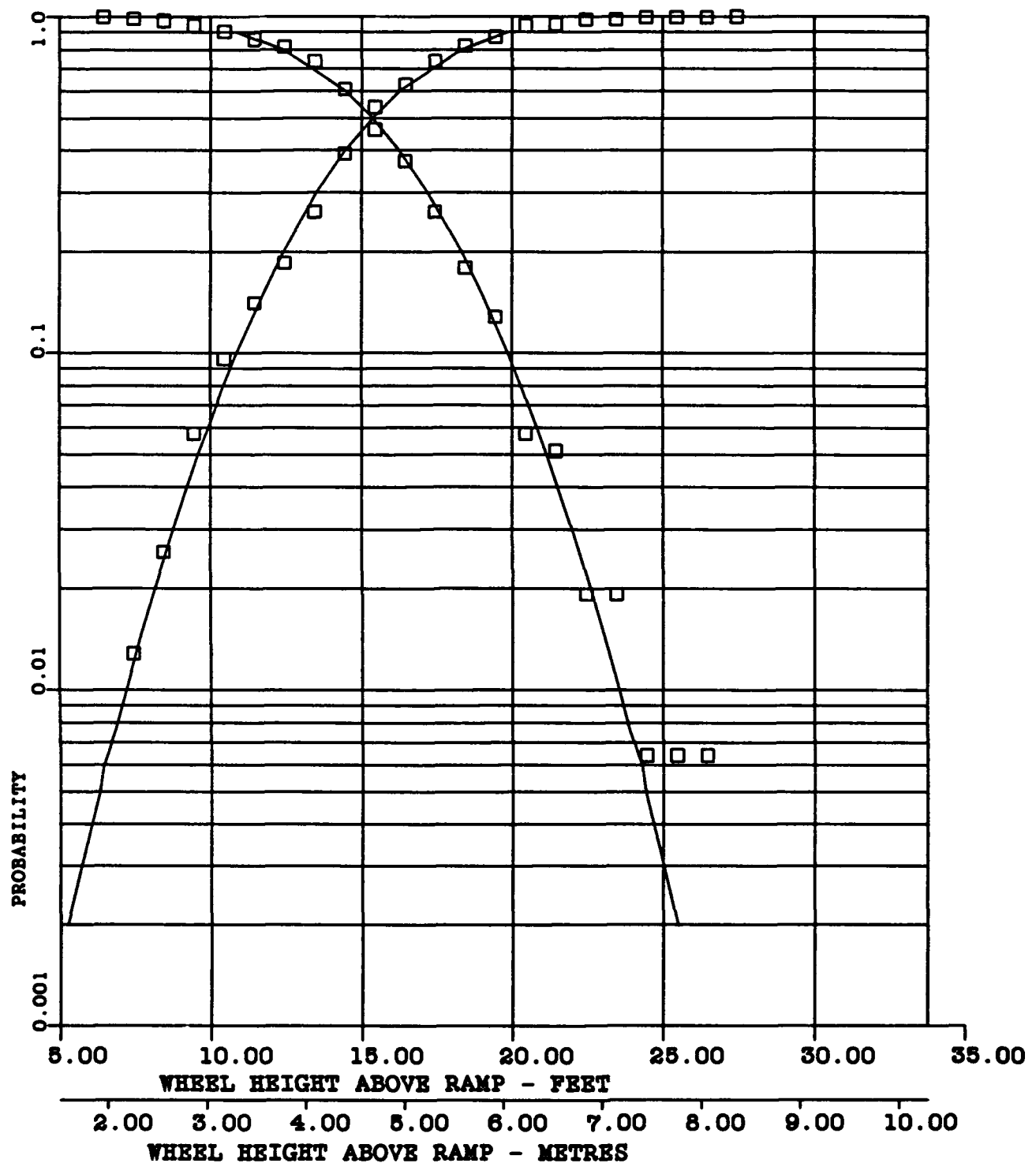


FIGURE B-6 PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -9.71 FEET/SEC (2.96 METRES/SEC)

A3--.42

S-2.56 FEET/SEC (.78 METRES/SEC)

A4-3.80

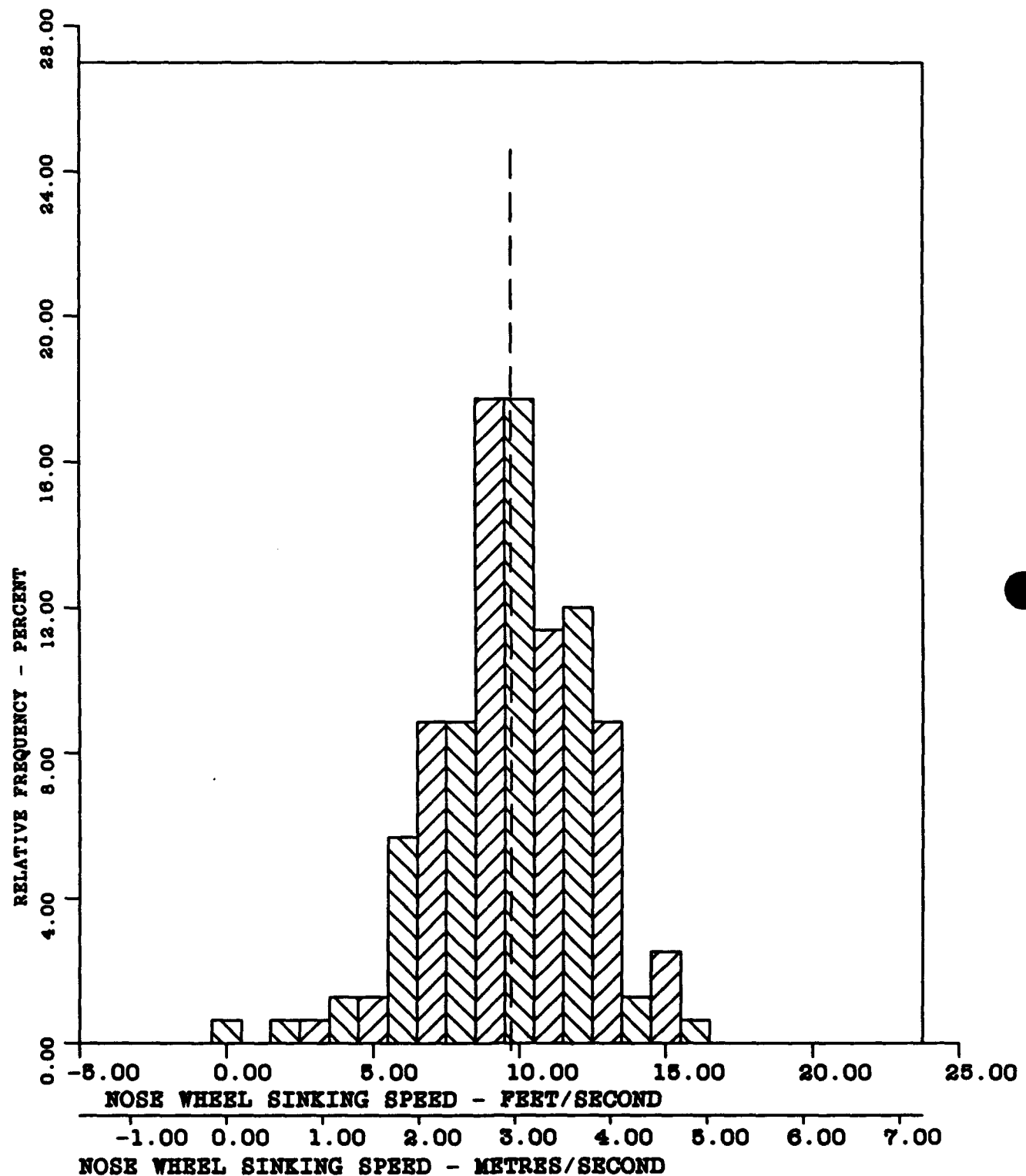


FIGURE B-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -9.71 FEET/SEC (2.96 METRES/SEC)

A3--.42

S-2.56 FEET/SEC (.78 METRES/SEC)

A4-3.80

CURVE FITTED - PEARSON TYPE III

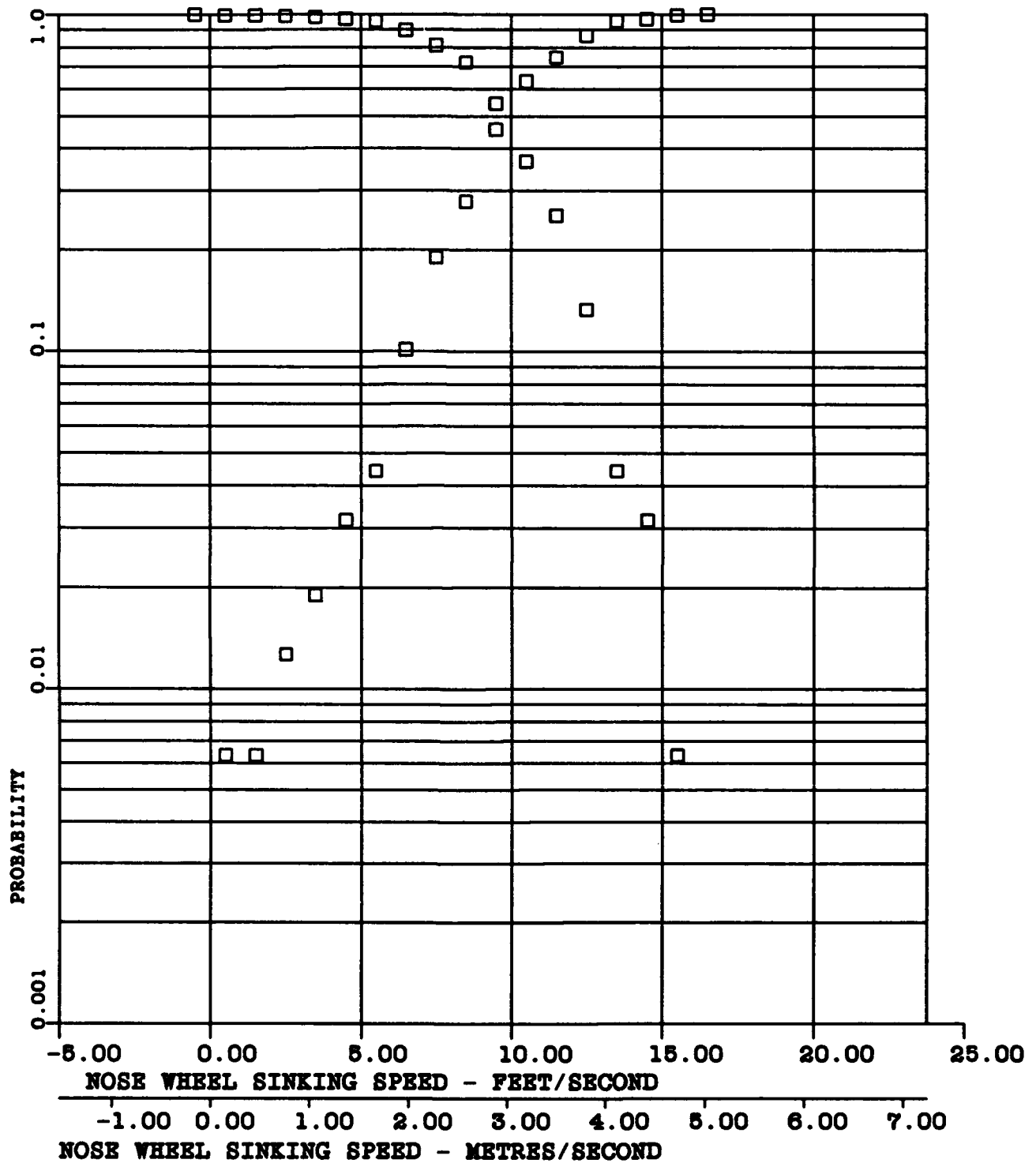


FIGURE B-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -10.38 FEET/SEC (3.16 METRES/SEC)

A3--.57

S-2.59 FEET/SEC (.79 METRES/SEC)

A4-3.48

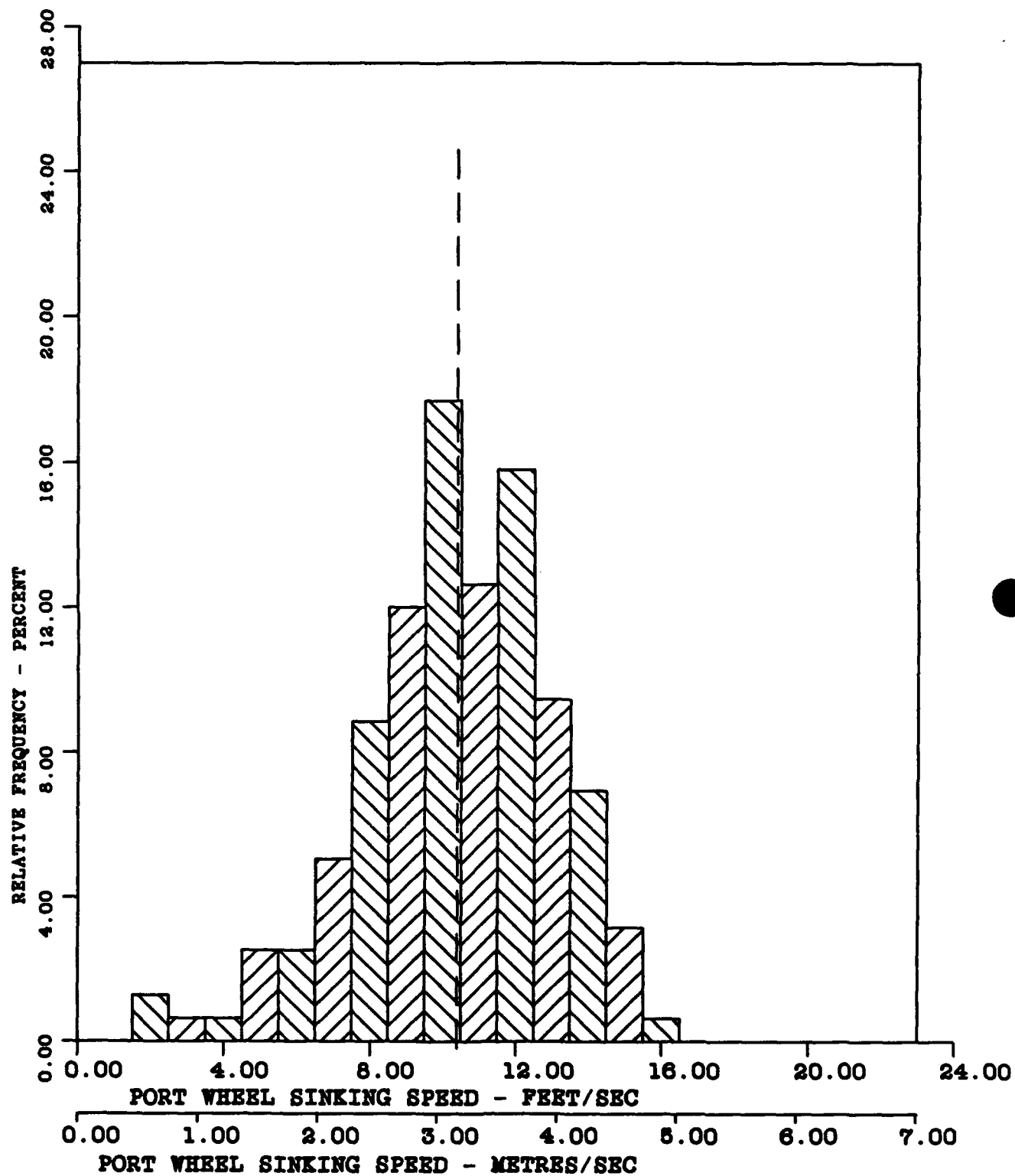


FIGURE B-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -10.38 FEET/SEC (3.16 METRES/SEC)

A3--.57

S-2.59 FEET/SEC (.79 METRES/SEC)

A4-3.48

CURVE FITTED - PEARSON TYPE III

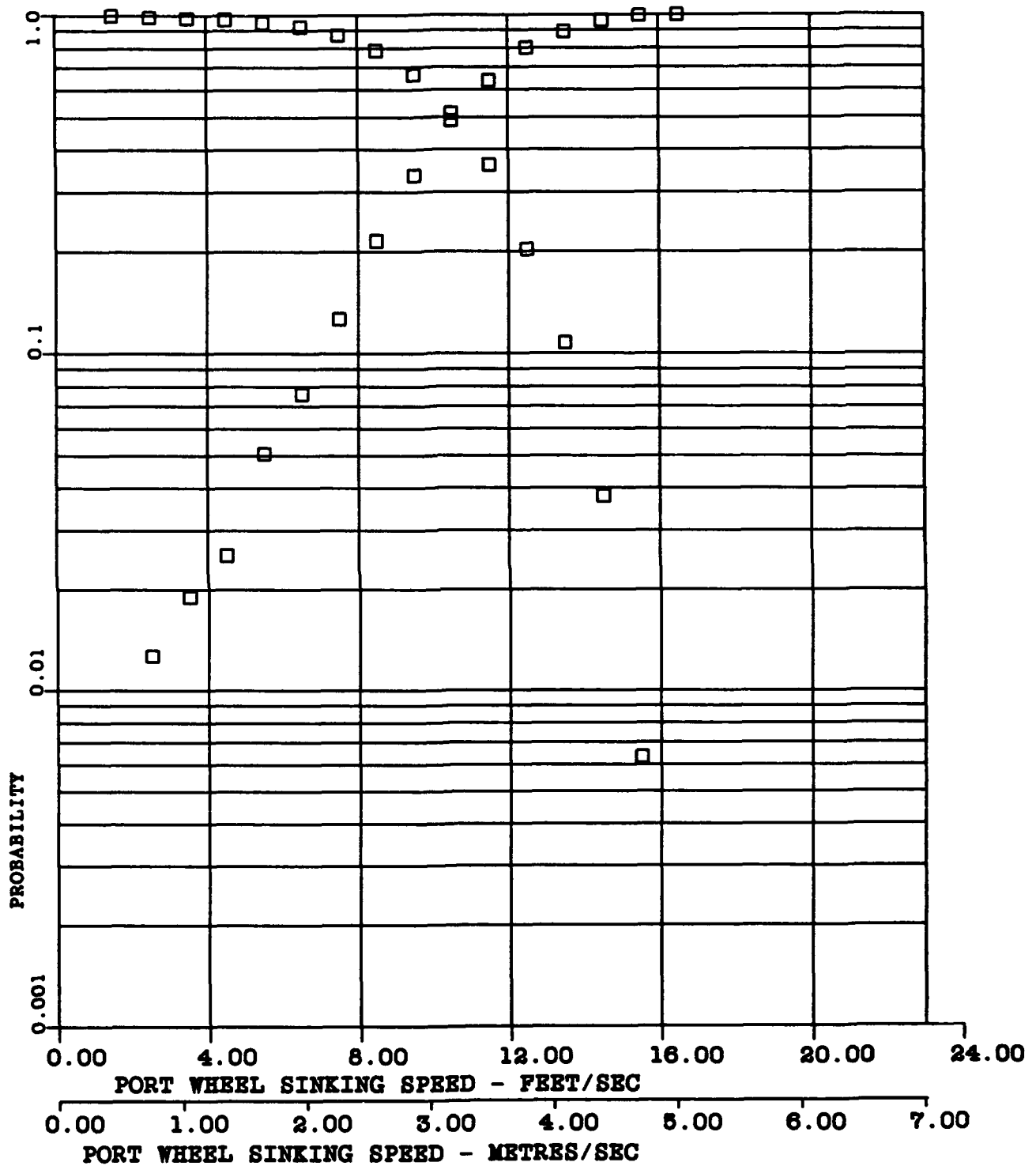


FIGURE B-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-66)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-157

 $\bar{X}$ -10.21 FEET/SEC (3.11 METRES/SEC)

A3--.33

S-2.68 FEET/SEC (.81 METRES/SEC)

A4-3.66

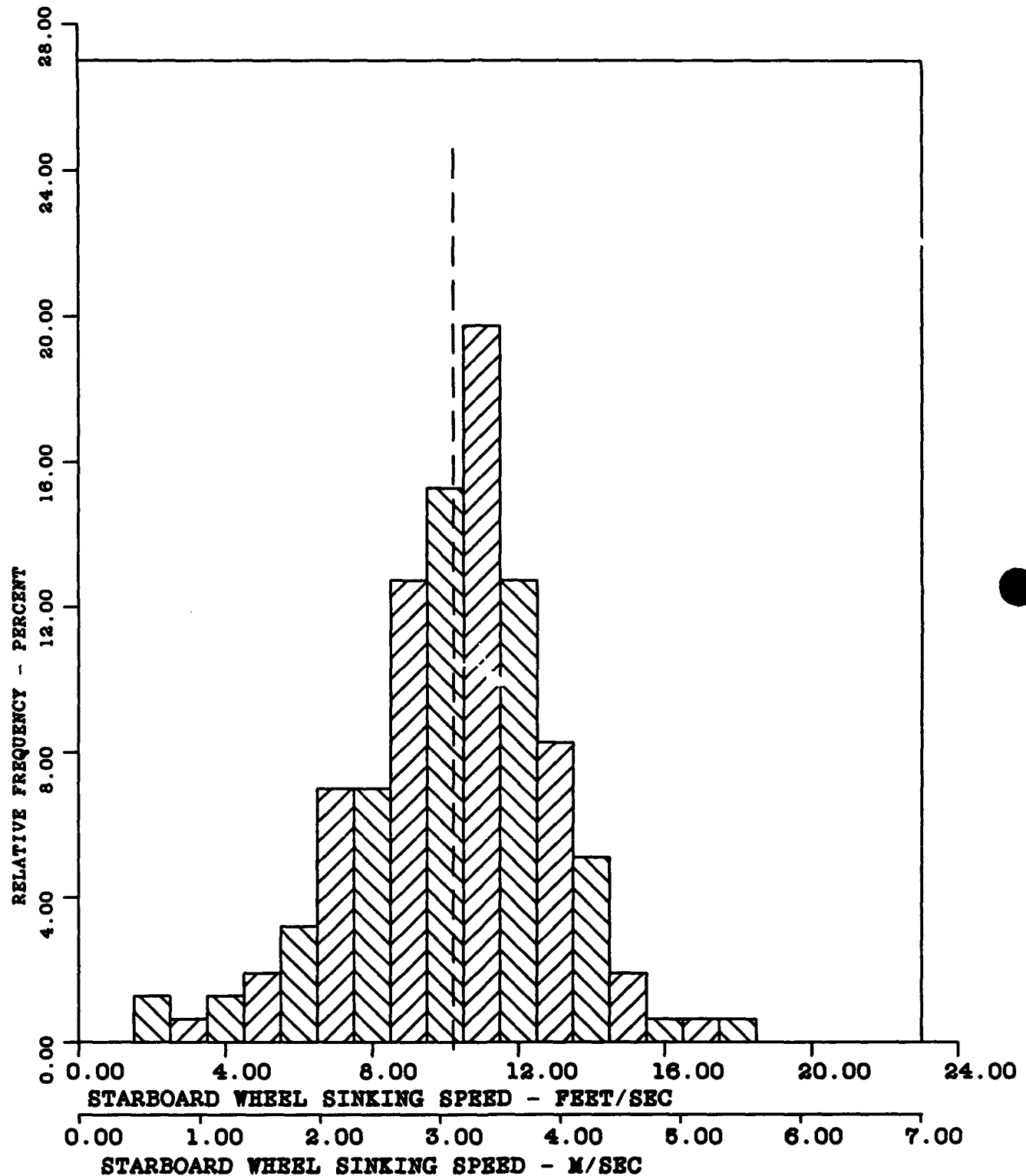


FIGURE B-10 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-157

 $\bar{X}$ -10.21 FEET/SEC (3.11 METRES/SEC)

A3--.33

S-2.68 FEET/SEC (.81 METRES/SEC)

A4-3.66

CURVE FITTED - NORMAL

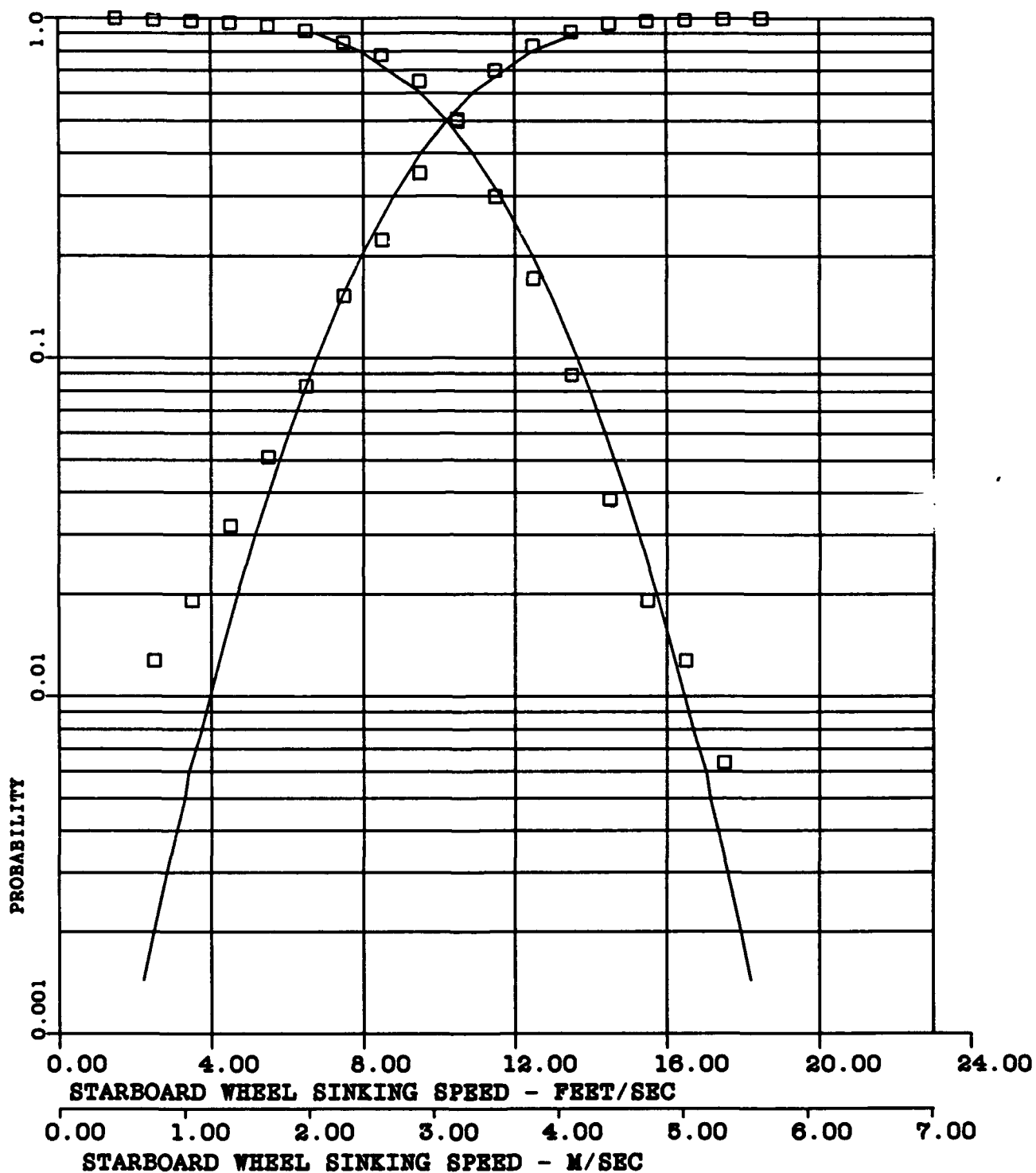


FIGURE B-11 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-157

 $\bar{X}$ -10.32 FEET/SEC (3.14 METRES/SEC)

A3--.65

S-2.54 FEET/SEC (.77 METRES/SEC)

A4-3.60

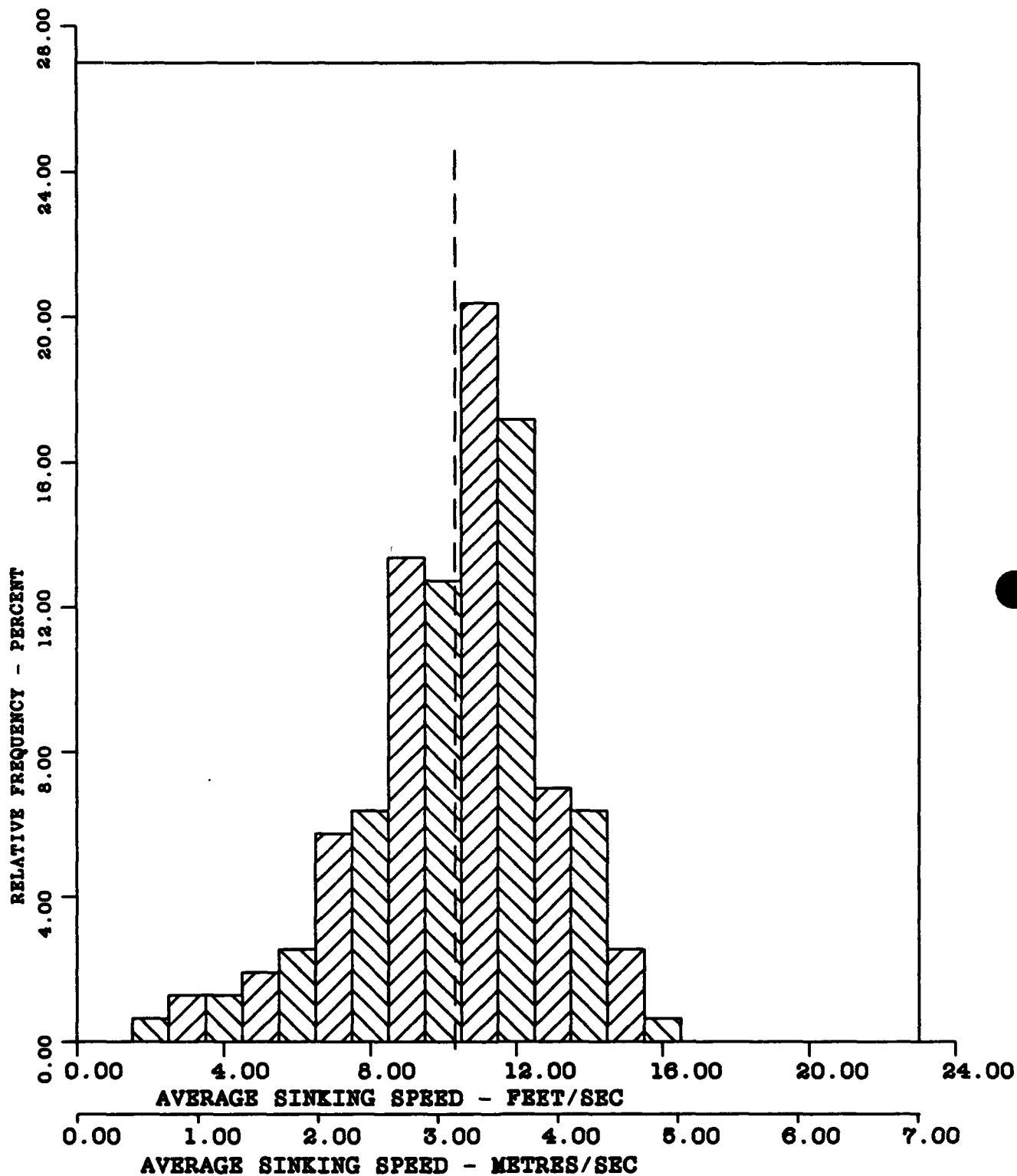


FIGURE B-12 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-157

 $\bar{X}$ -10.32 FEET/SEC (3.14 METRES/SEC)

S-2.54 FEET/SEC (.77 METRES/SEC)

CURVE FITTED - PEARSON TYPE III

A3--.65

A4-3.60

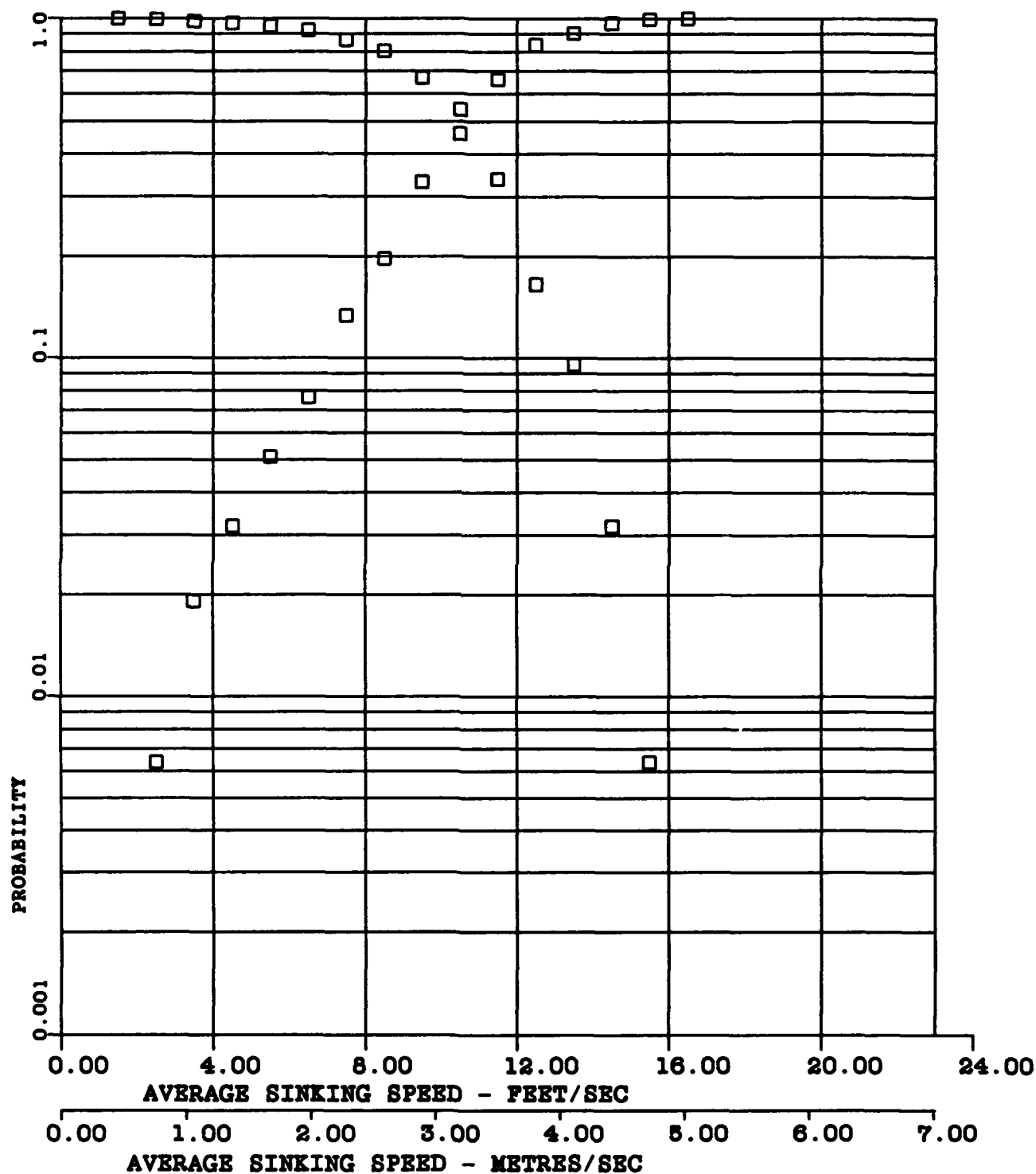


FIGURE B-13 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-30

 $\bar{X}$ -9.28 FEET/SEC (2.83 METRES/SEC)

A3--.34

S-3.13 FEET/SEC (.95 METRES/SEC)

A4-2.49

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

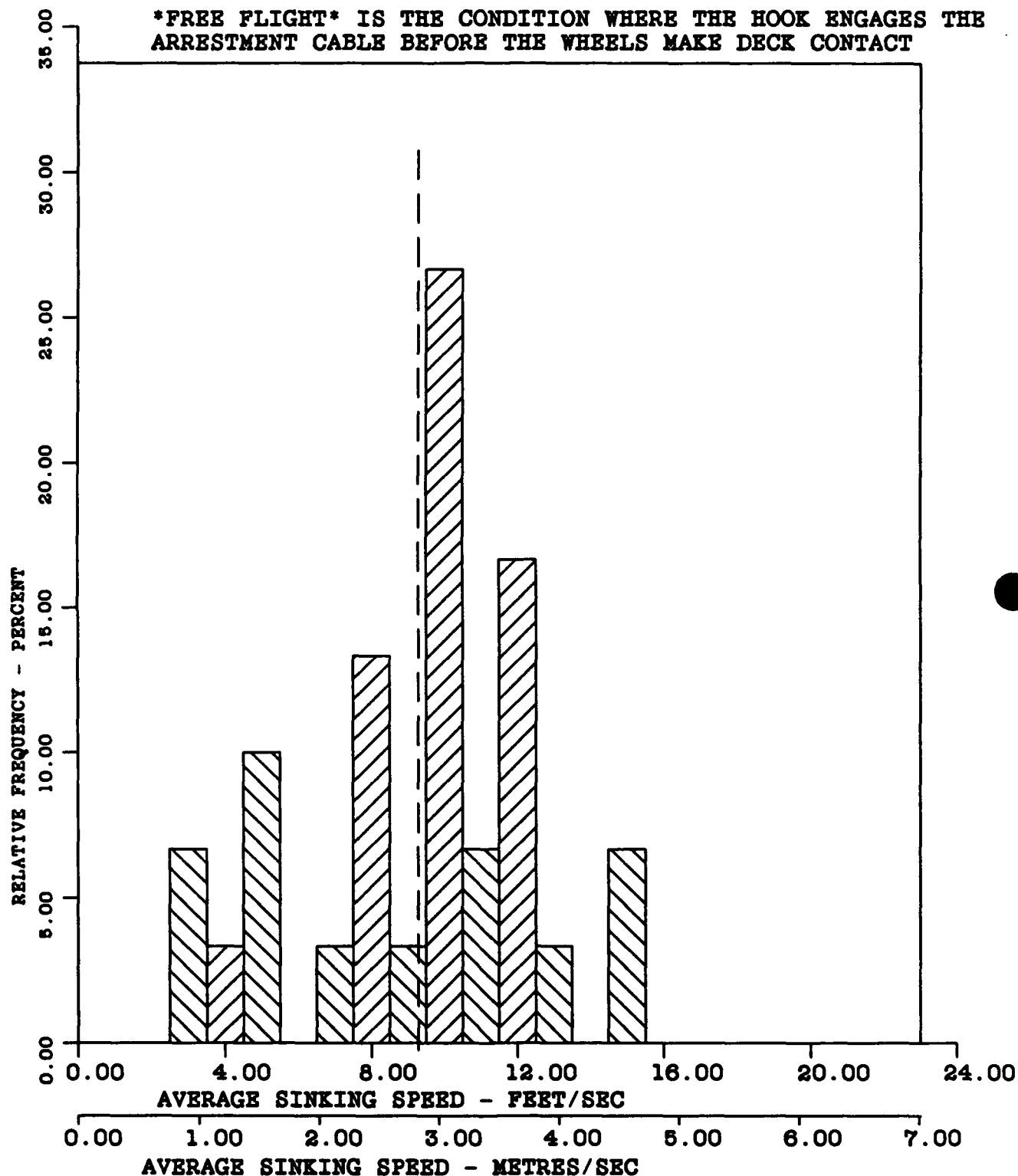


FIGURE B-14 FREQUENCY DISTRIBUTION OF AVERAGE SINKING  
SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-30

 $\bar{X}$ -9.28 FEET/SEC (2.83 METRES/SEC)

A3--.34

S-3.13 FEET/SEC (.95 METRES/SEC)

A4-2.49

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

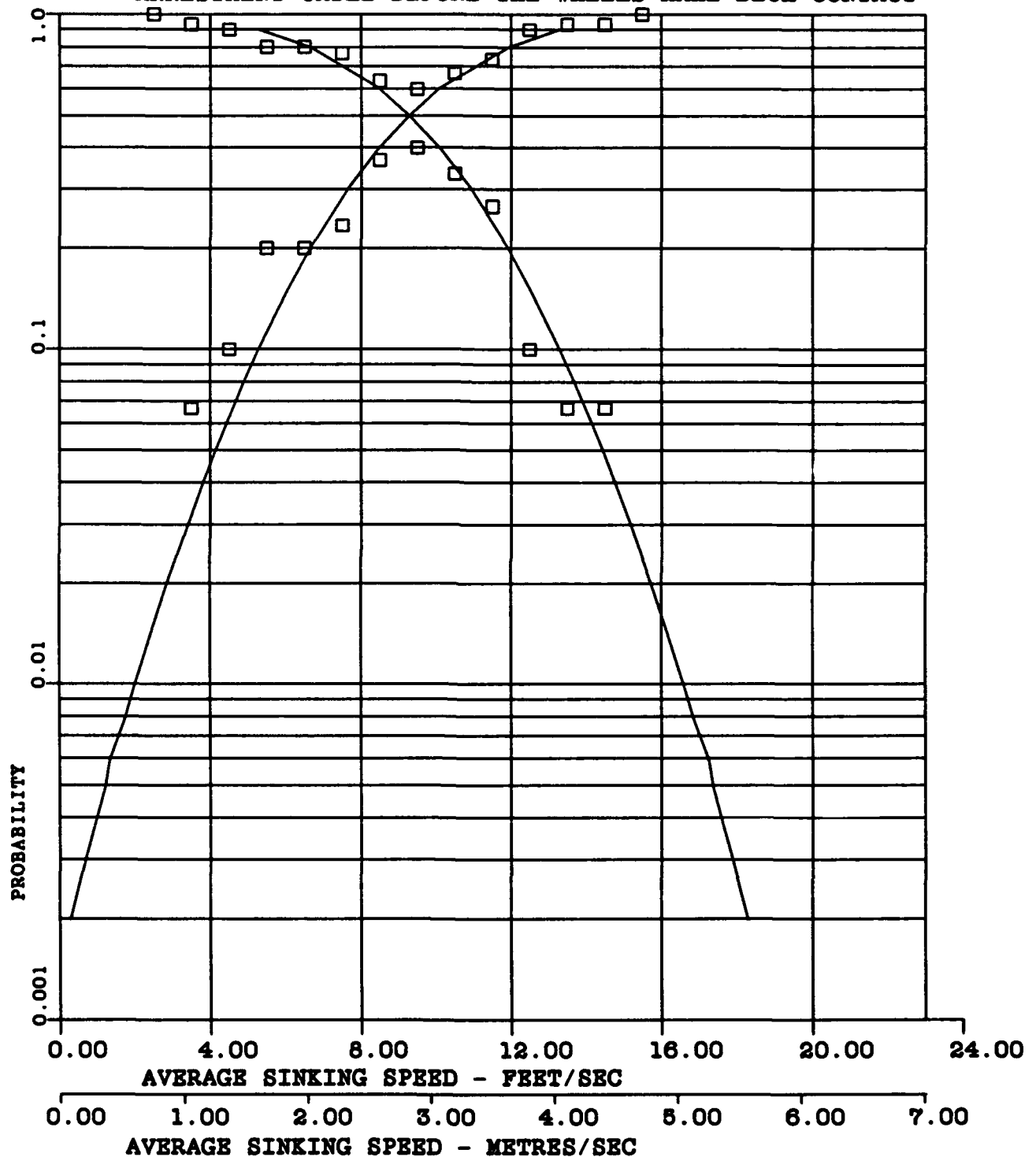


FIGURE B-15 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-157

 $\bar{X}$ -1.04

S-.09

A3-.26

A4-2.94

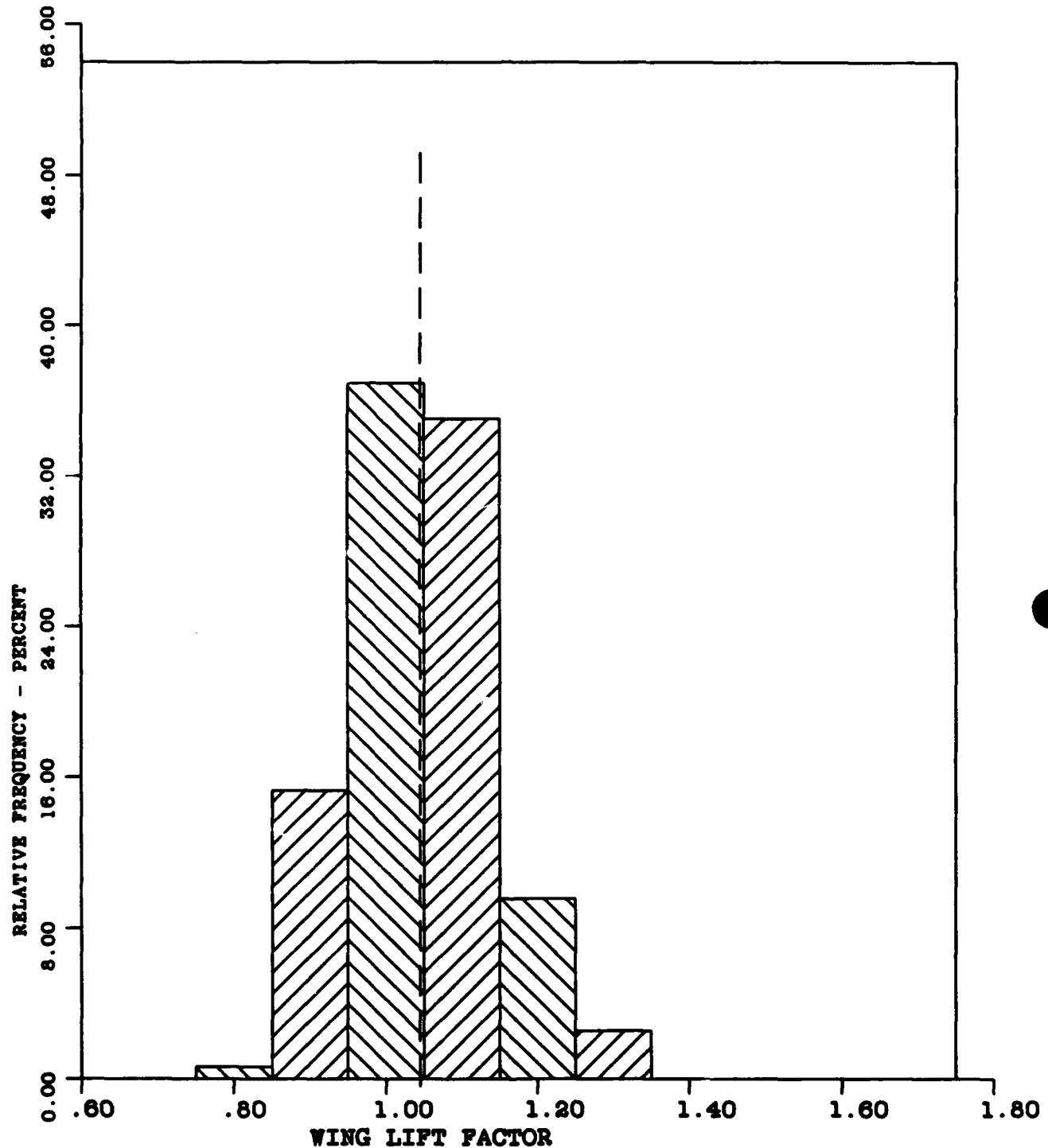


FIGURE B-16 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-157

 $\bar{X}$ -1.04

A3-.26

S-.09

A4-2.94

CURVE FITTED - NORMAL

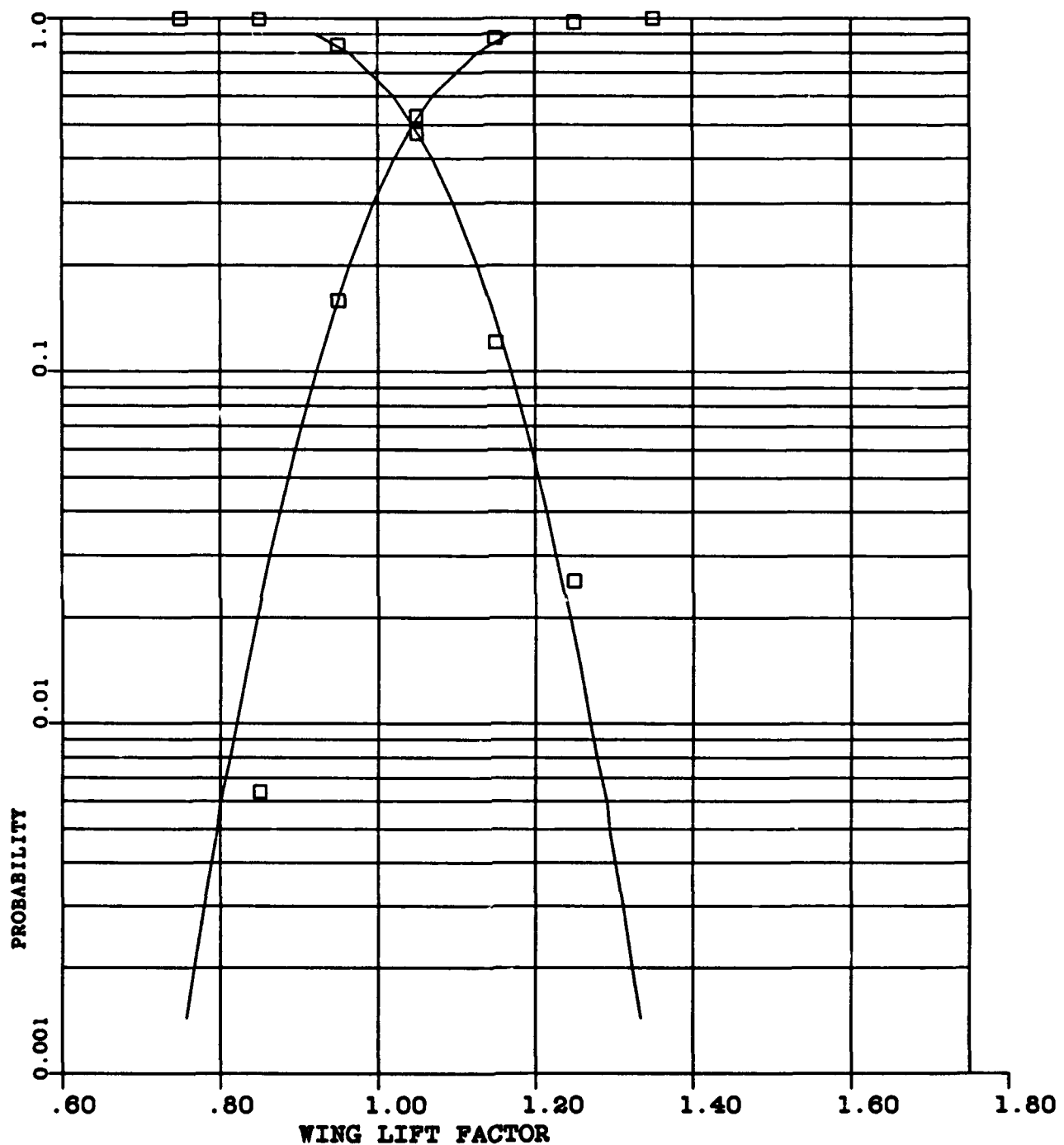


FIGURE B-17 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-30

 $\bar{X}$ -1.08

A3-.73

S-.10

A4-3.70

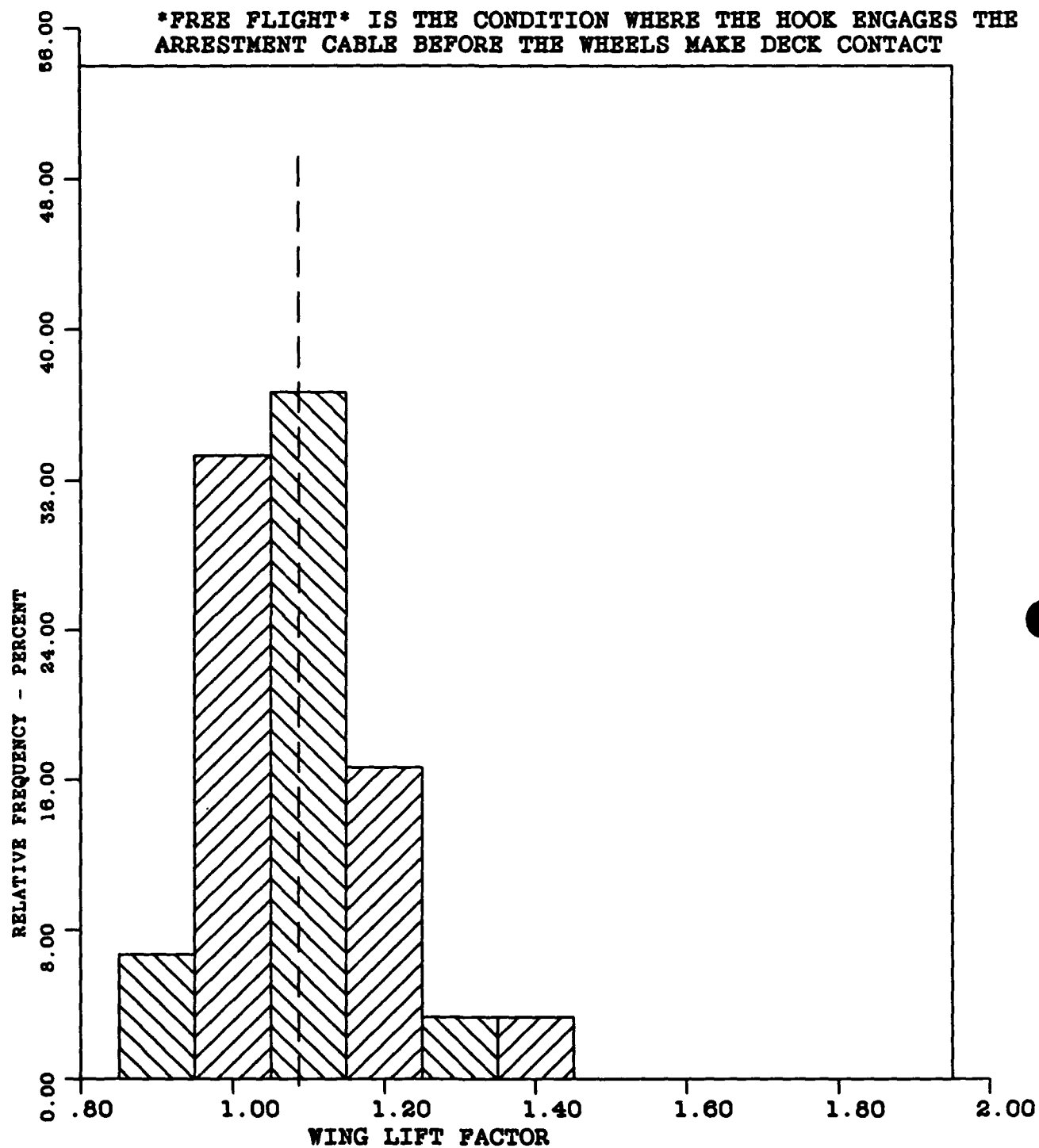


FIGURE B-18 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=30

 $\bar{X}$ =1.08

S=.10

A3=.73

A4=3.70

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

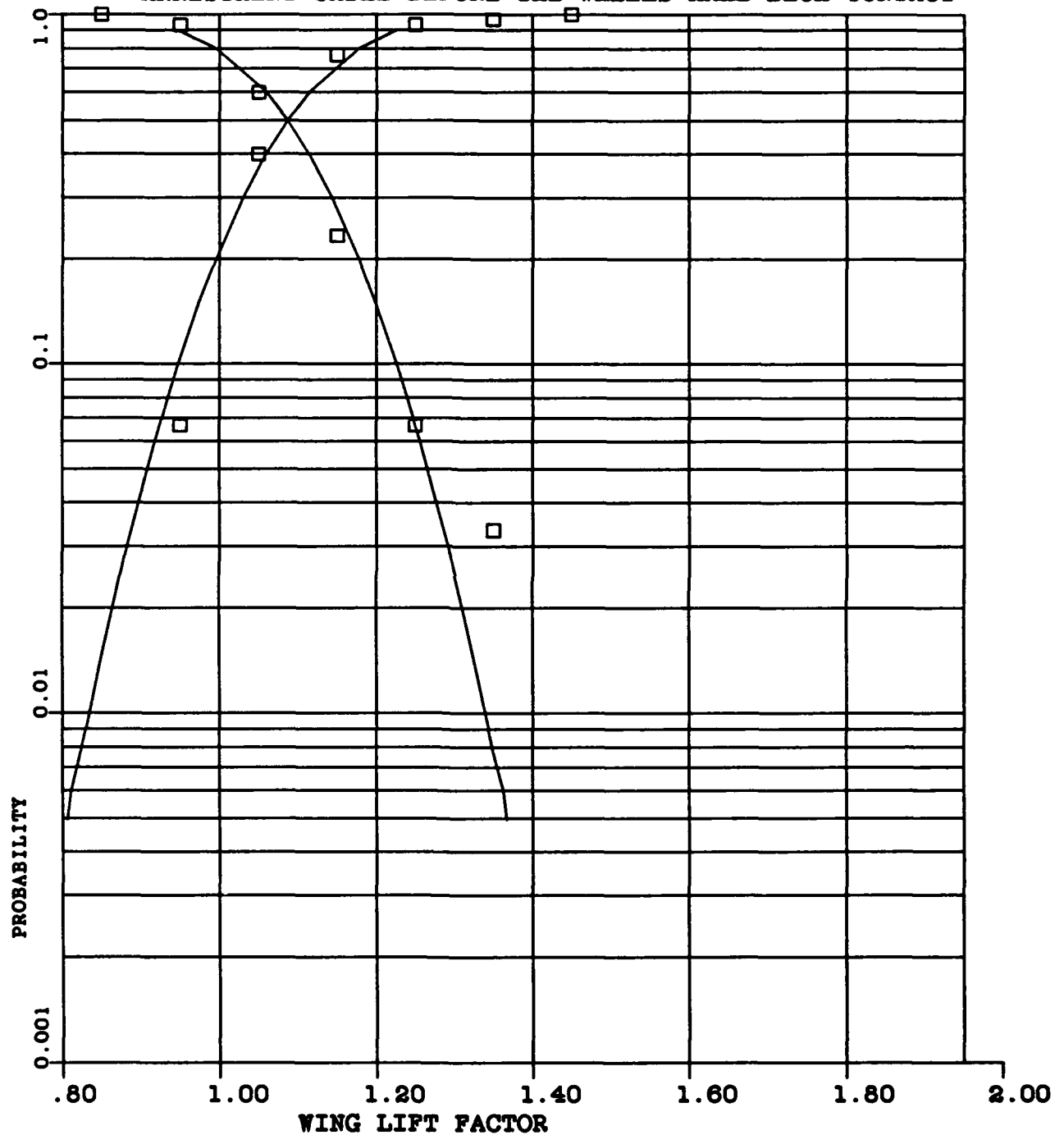


FIGURE B-19 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -9.15 DEGREES (.159 RADIANS)

A3-.03

S-1.14 DEGREES (.019 RADIANS)

A4-3.12

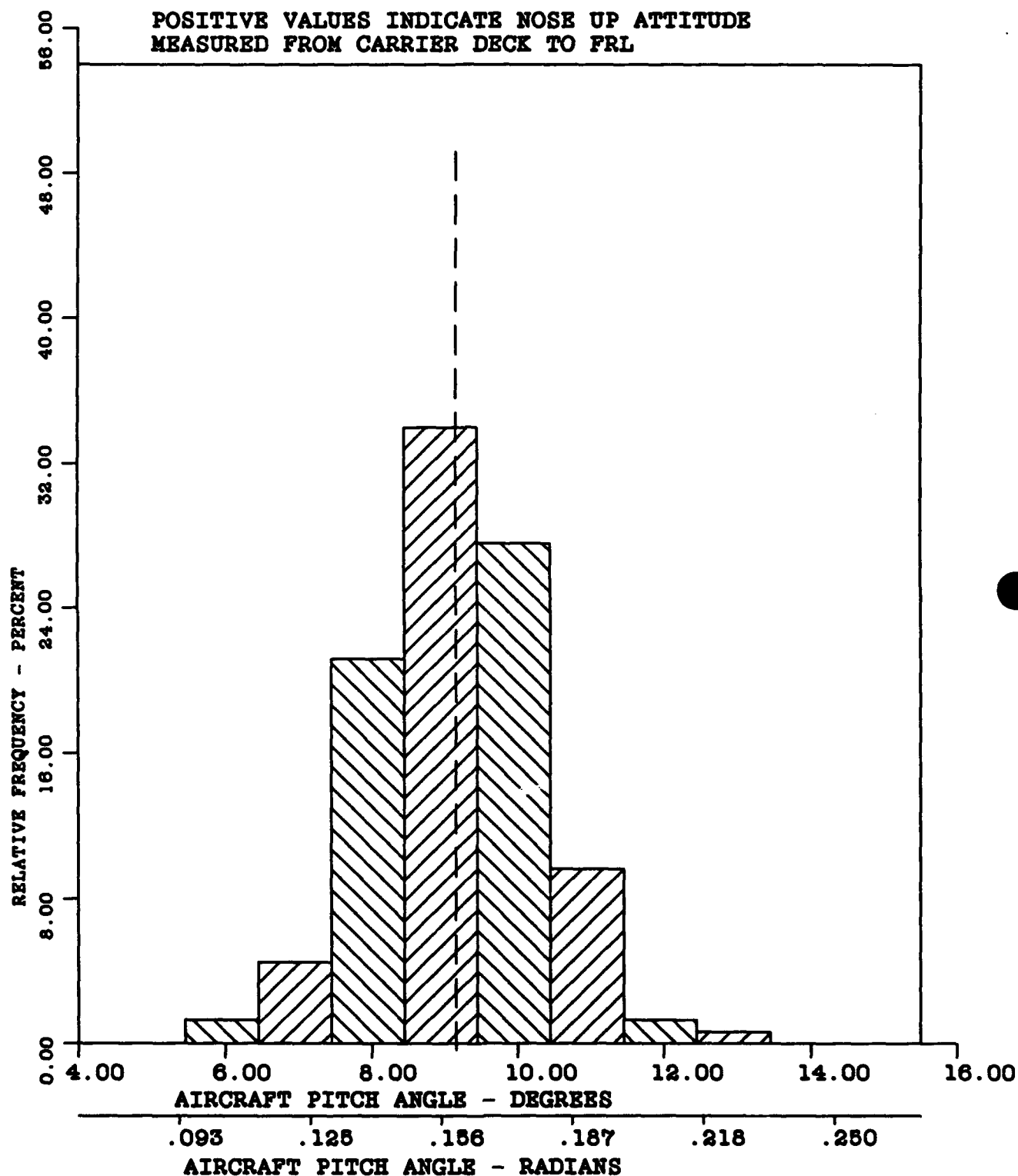


FIGURE B-20 FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -9.18 DEGREES (.159 RADIANS)

A3-.03

S-1.14 DEGREES (.019 RADIANS)

A4-3.12

CURVE FITTED - NORMAL

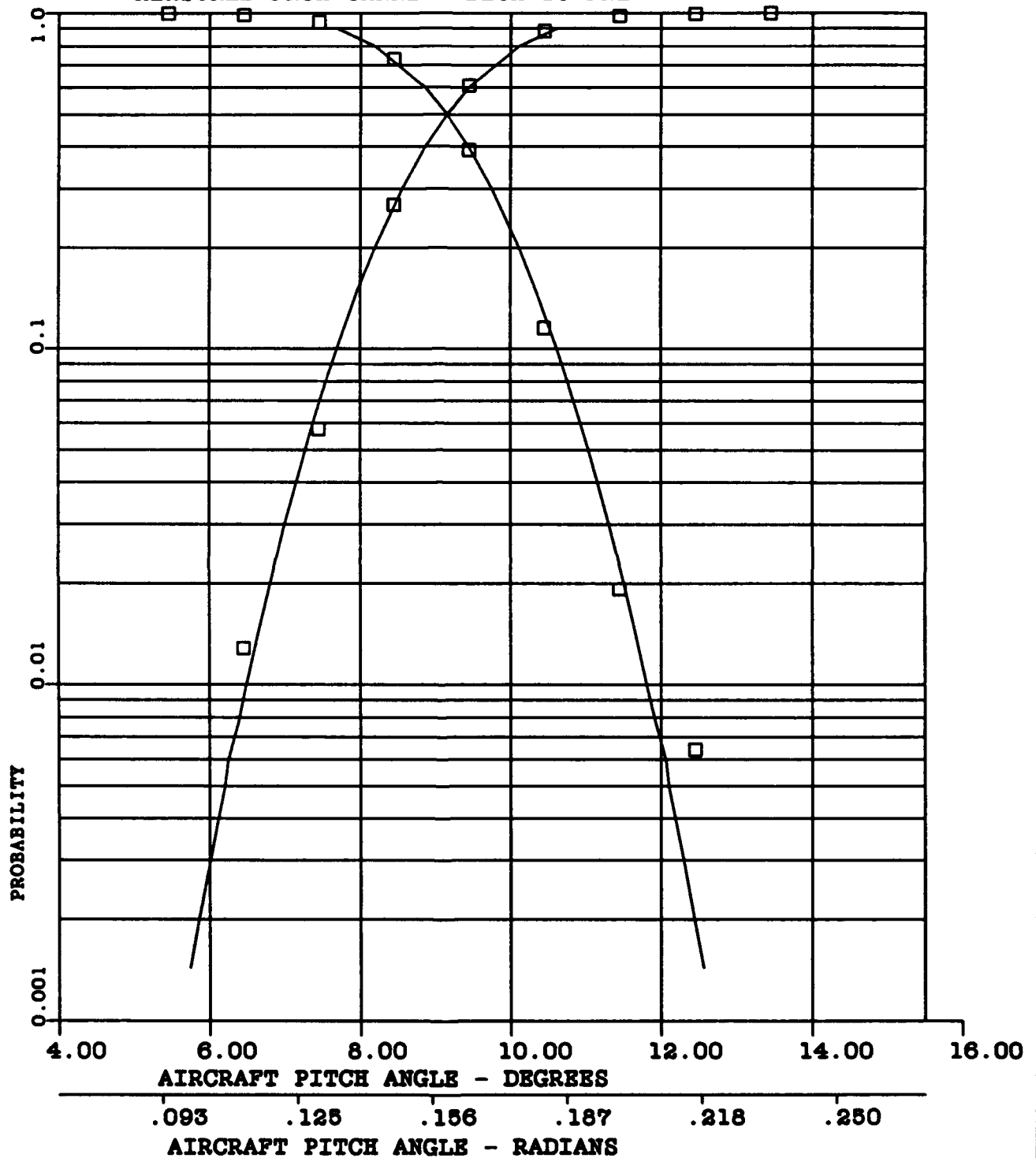
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE B-21 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -7.76 DEGREES (.135 RADIANS)

S-1.17 DEGREES (.020 RADIANS)

A3-.60

A4-4.62

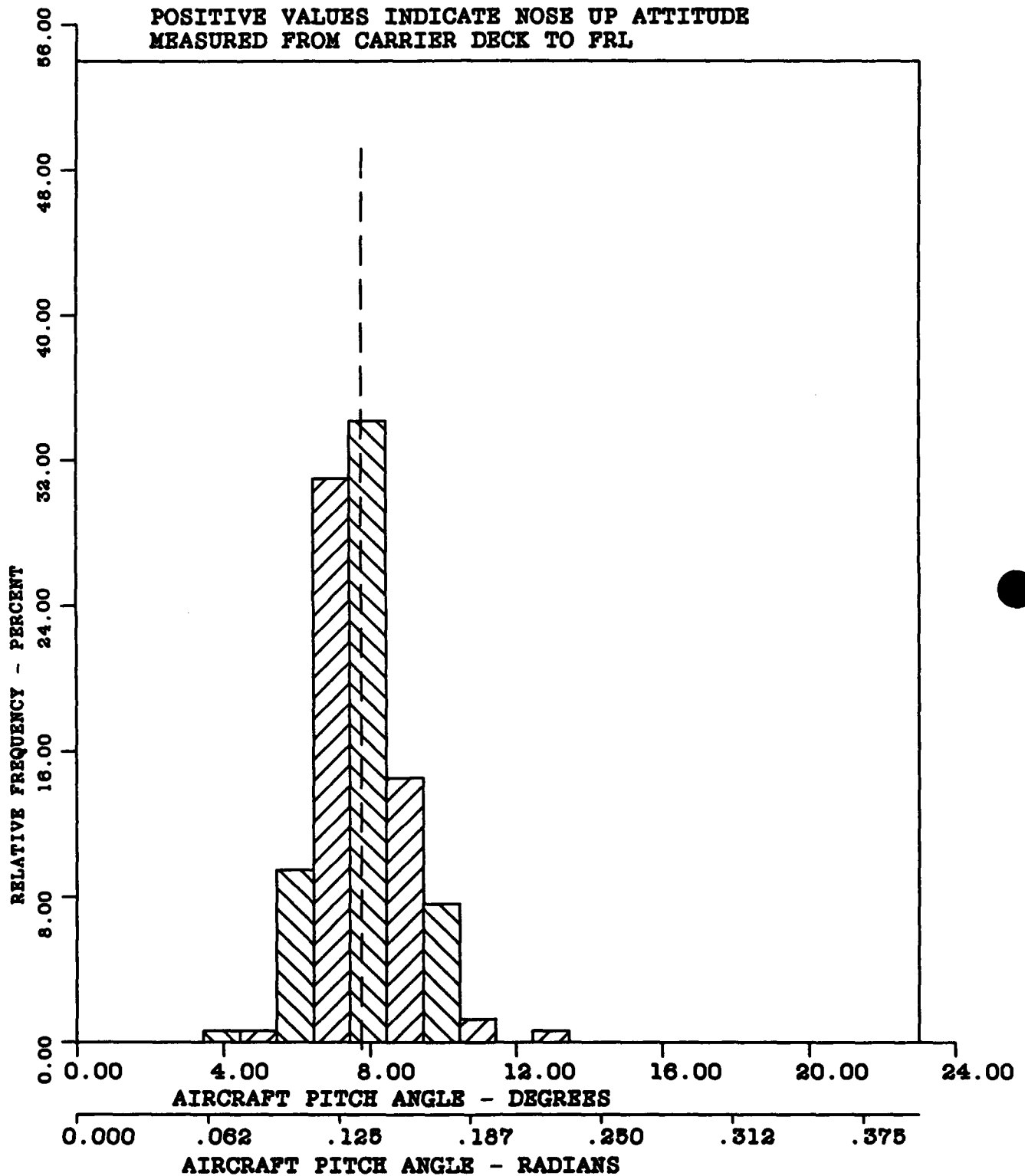


FIGURE B-22 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -7.76 DEGREES (.135 RADIANS)

A3-.60

S-1.17 DEGREES (.020 RADIANS)

A4-4.62

CURVE FITTED - PEARSON TYPE III

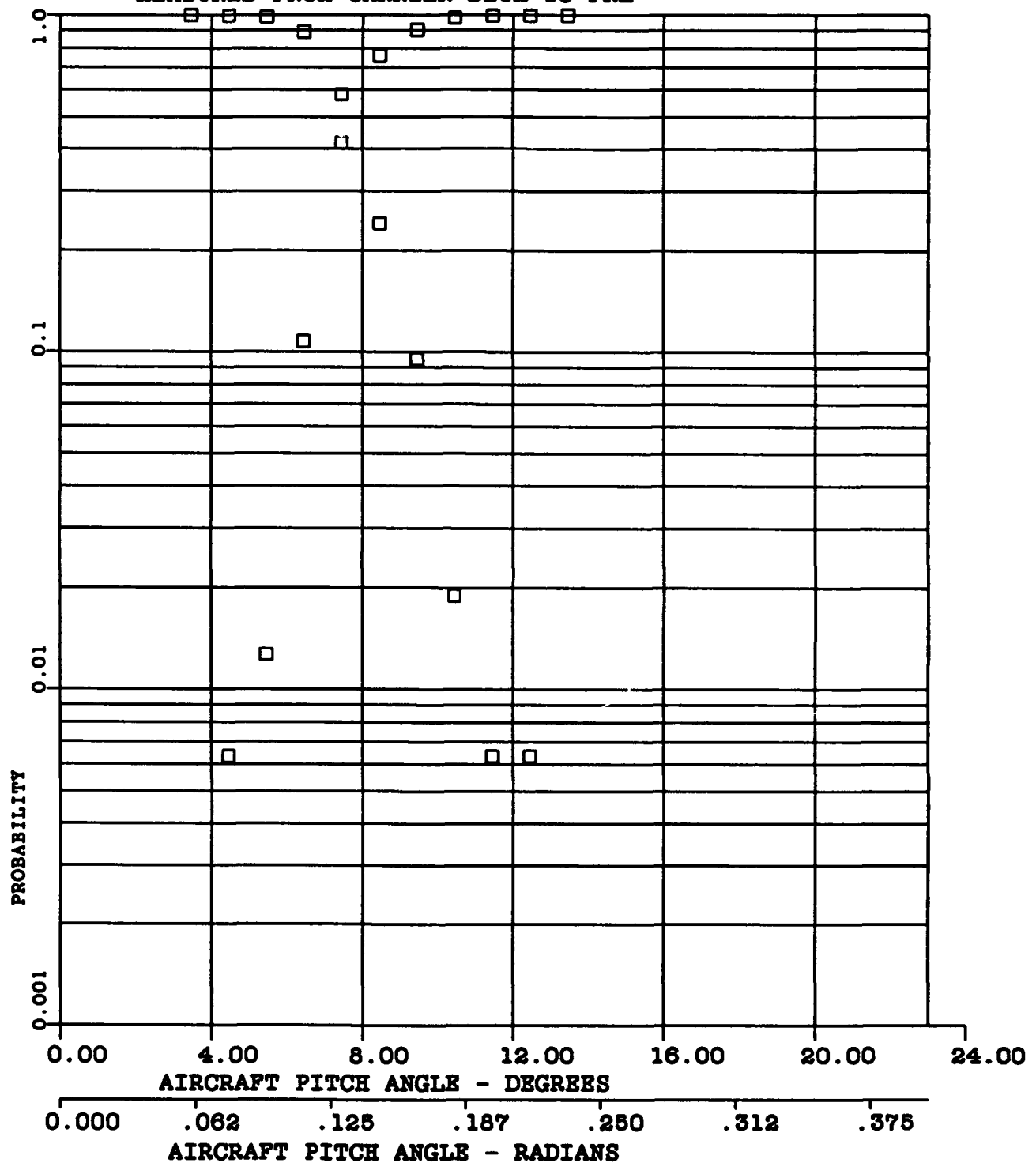
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE B-23 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-30

 $\bar{X}$ -8.07 DEGREES (.140 RADIANS)

A3-.78

S-1.18 DEGREES (.020 RADIANS)

A4-3.07

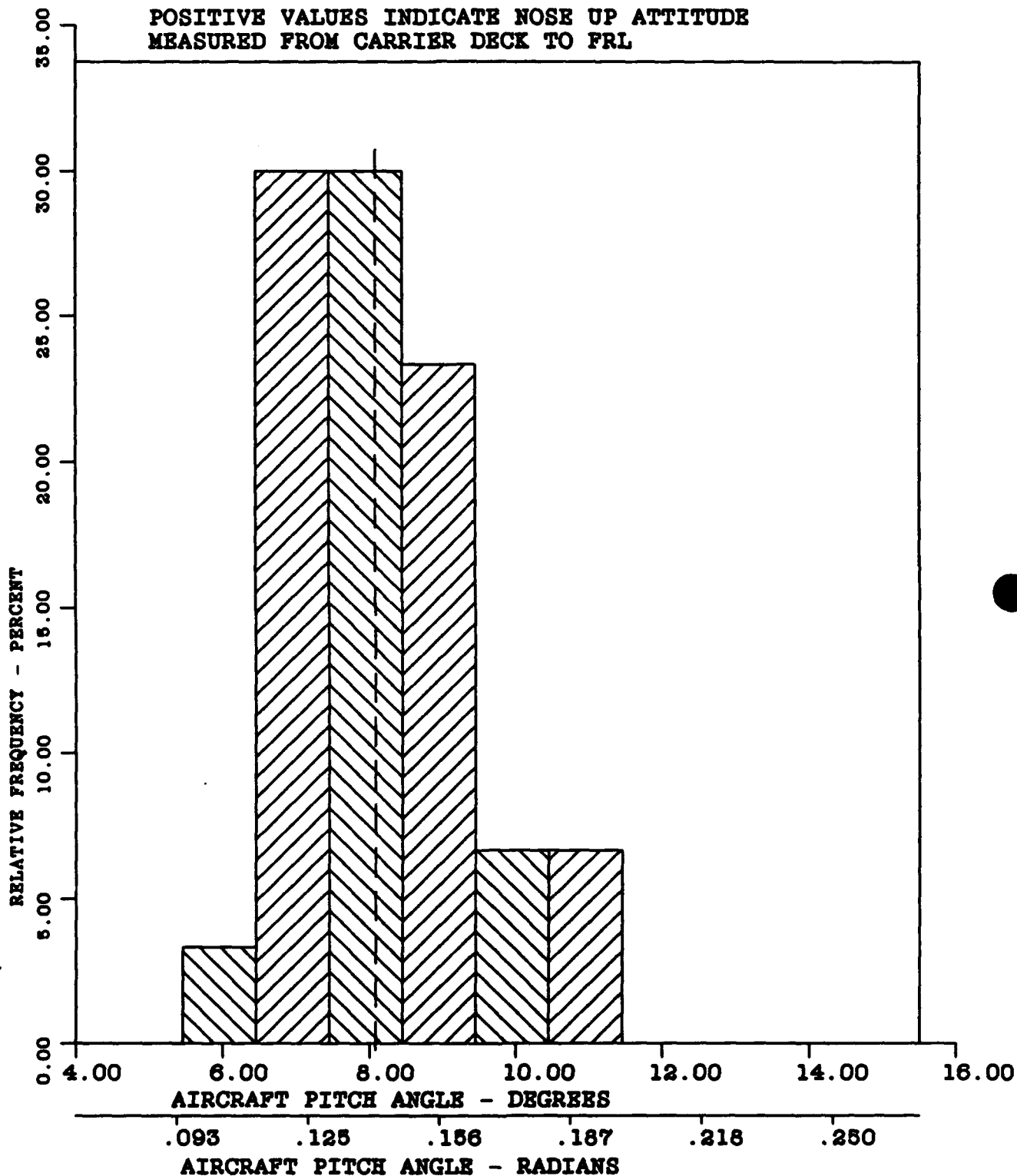


FIGURE B-24 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-30

 $\bar{X}$ -8.07 DEGREES (.140 RADIANS)

A3-.78

S-1.18 DEGREES (.020 RADIANS)

A4-3.07

CURVE FITTED - NORMAL

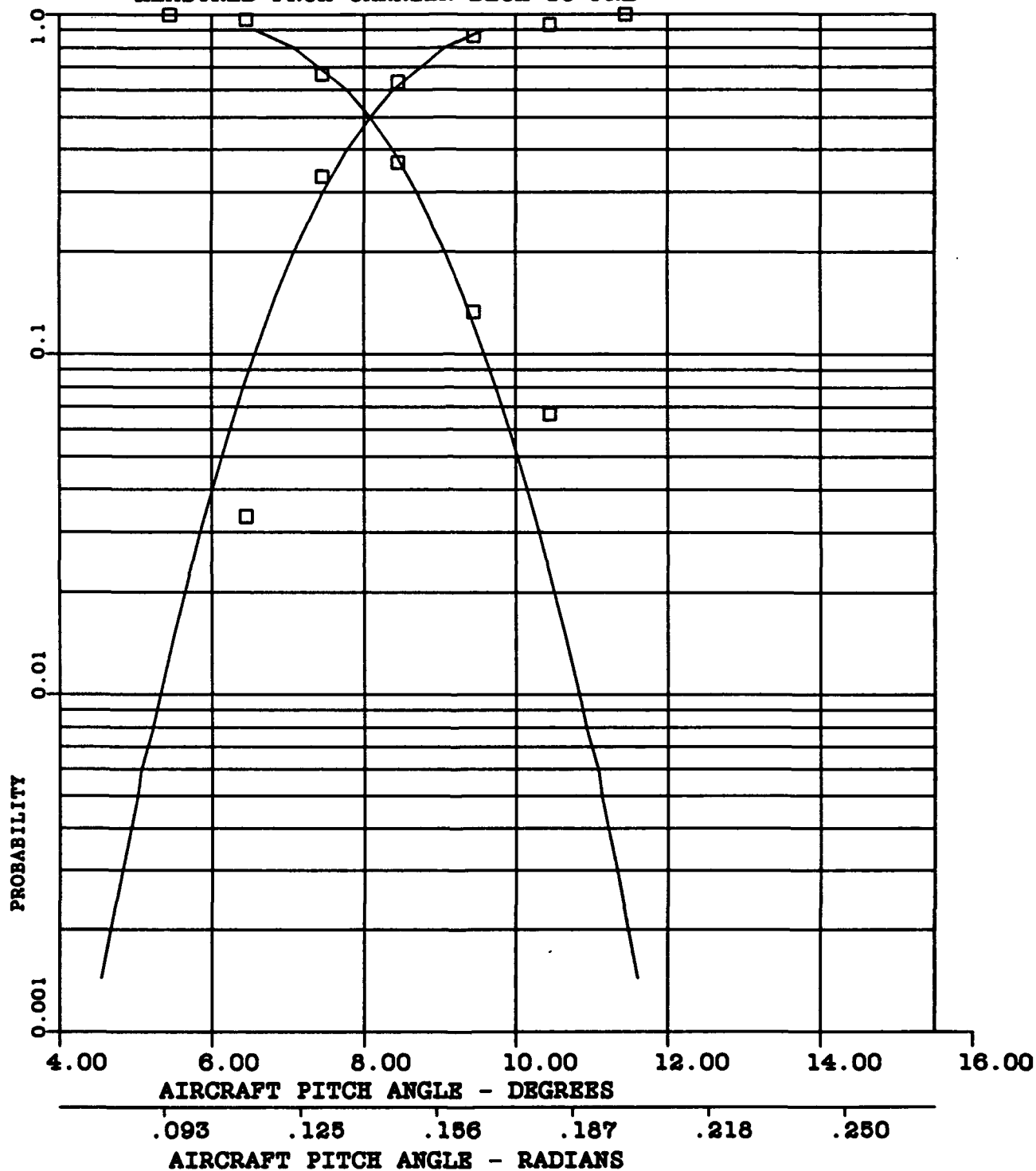
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE B-25 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -.18 DEGREES (-.003 RADIANS)

A3-.32

S-2.49 DEGREES (.043 RADIANS)

A4-3.44

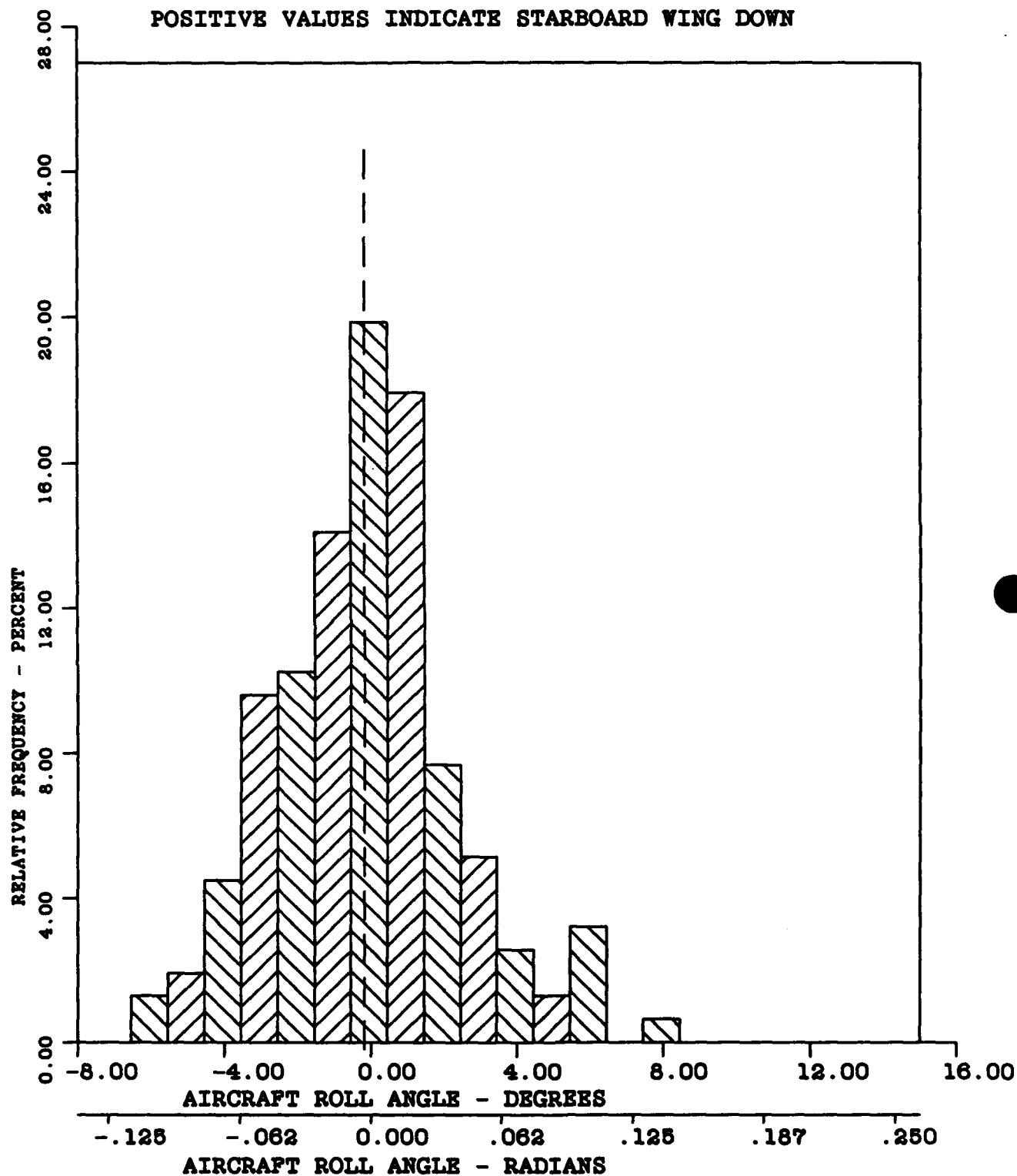


FIGURE B-26 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -.18 DEGREES (-.003 RADIANS)

A3-.32

S-2.49 DEGREES (.043 RADIANS)

A4-3.44

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

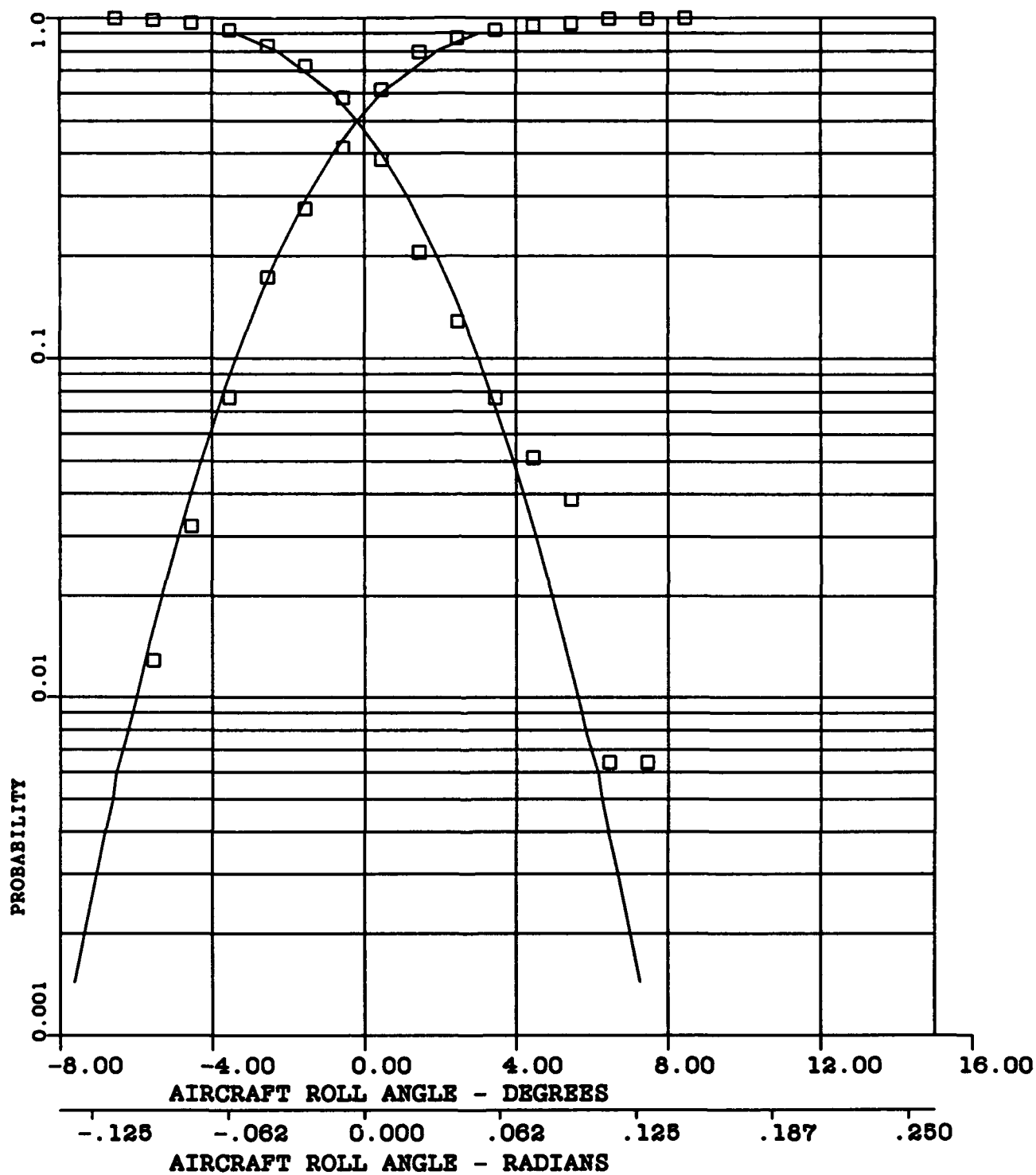


FIGURE B-27 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=158

 $\bar{X}$  = -.58 DEGREES (-.010 RADIANS)

A3 = .10

S = 2.09 DEGREES (.036 RADIANS)

A4 = 3.33

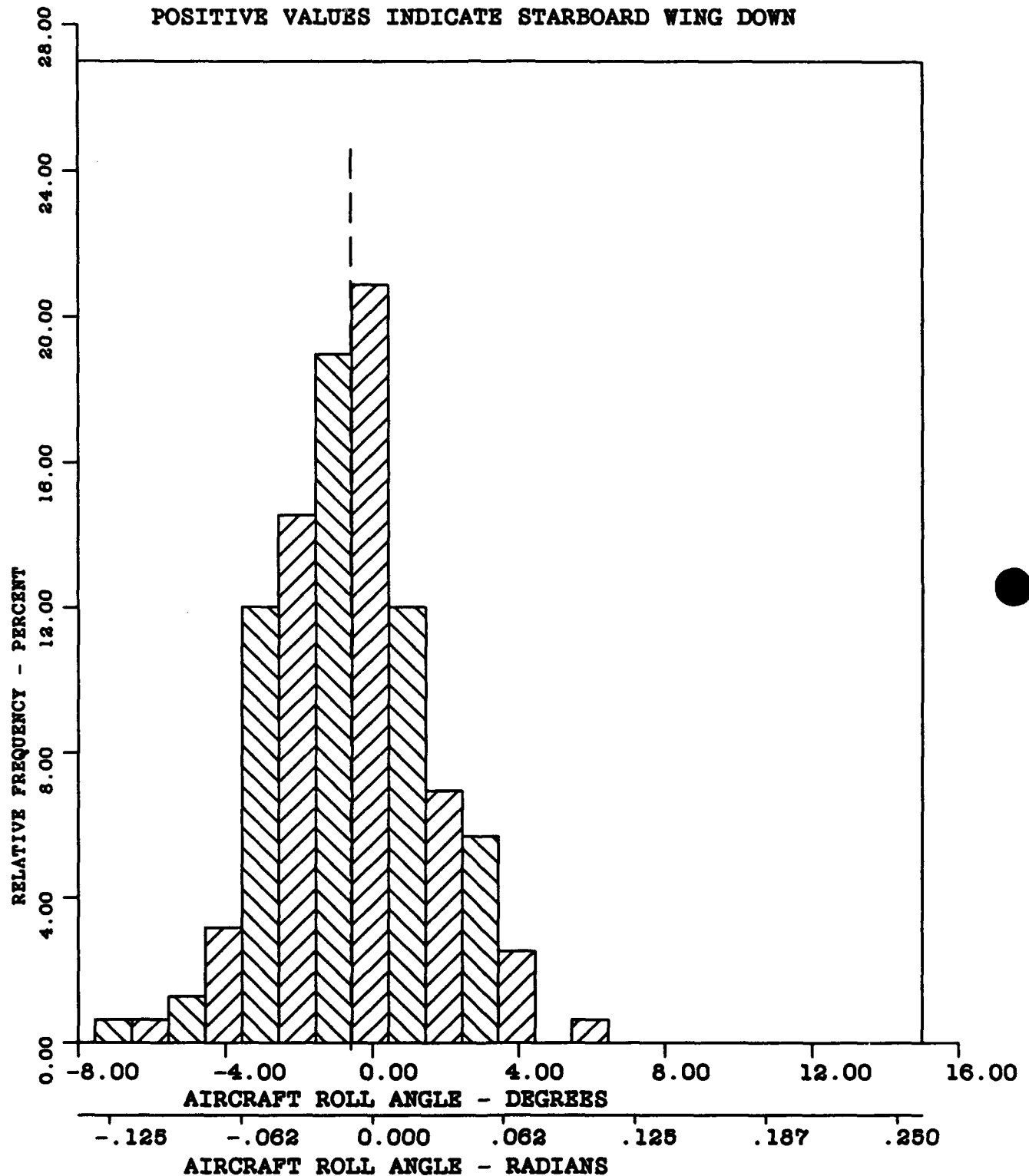


FIGURE B-28 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$  = -.58 DEGREES (-.010 RADIANS)

A3-.10

S=2.09 DEGREES (.036 RADIANS)

A4-3.33

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

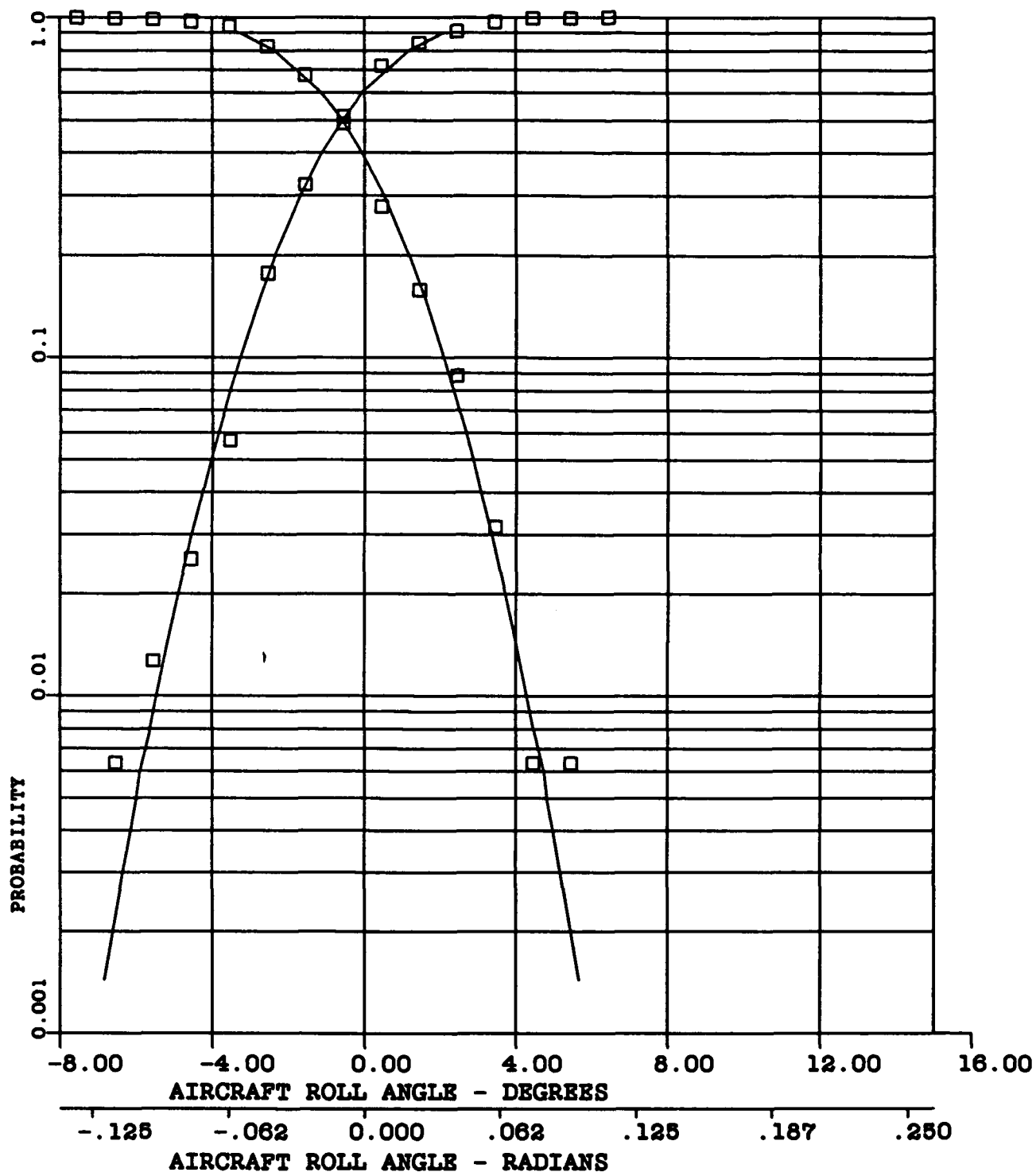


FIGURE B-29 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-30

 $\bar{X}$  = -.50 DEGREES (-.008 RADIANS)

A3-.82

S=1.38 DEGREES (.024 RADIANS)

A4-3.46

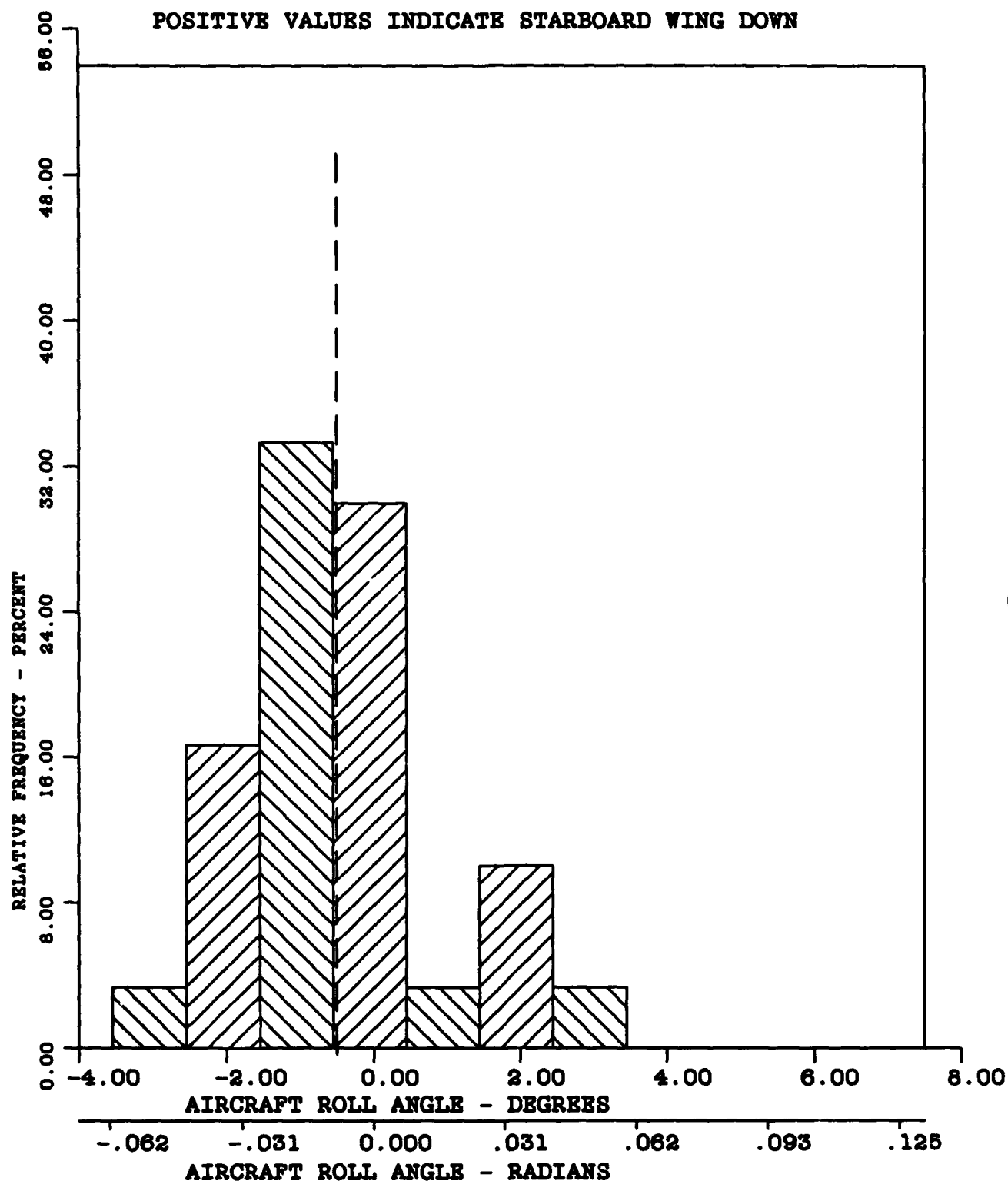


FIGURE B-30 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-30

 $\bar{X}$  = -.50 DEGREES (-.008 RADIANS)

A3-.82

S=1.38 DEGREES (.024 RADIANS)

A4-3.46

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

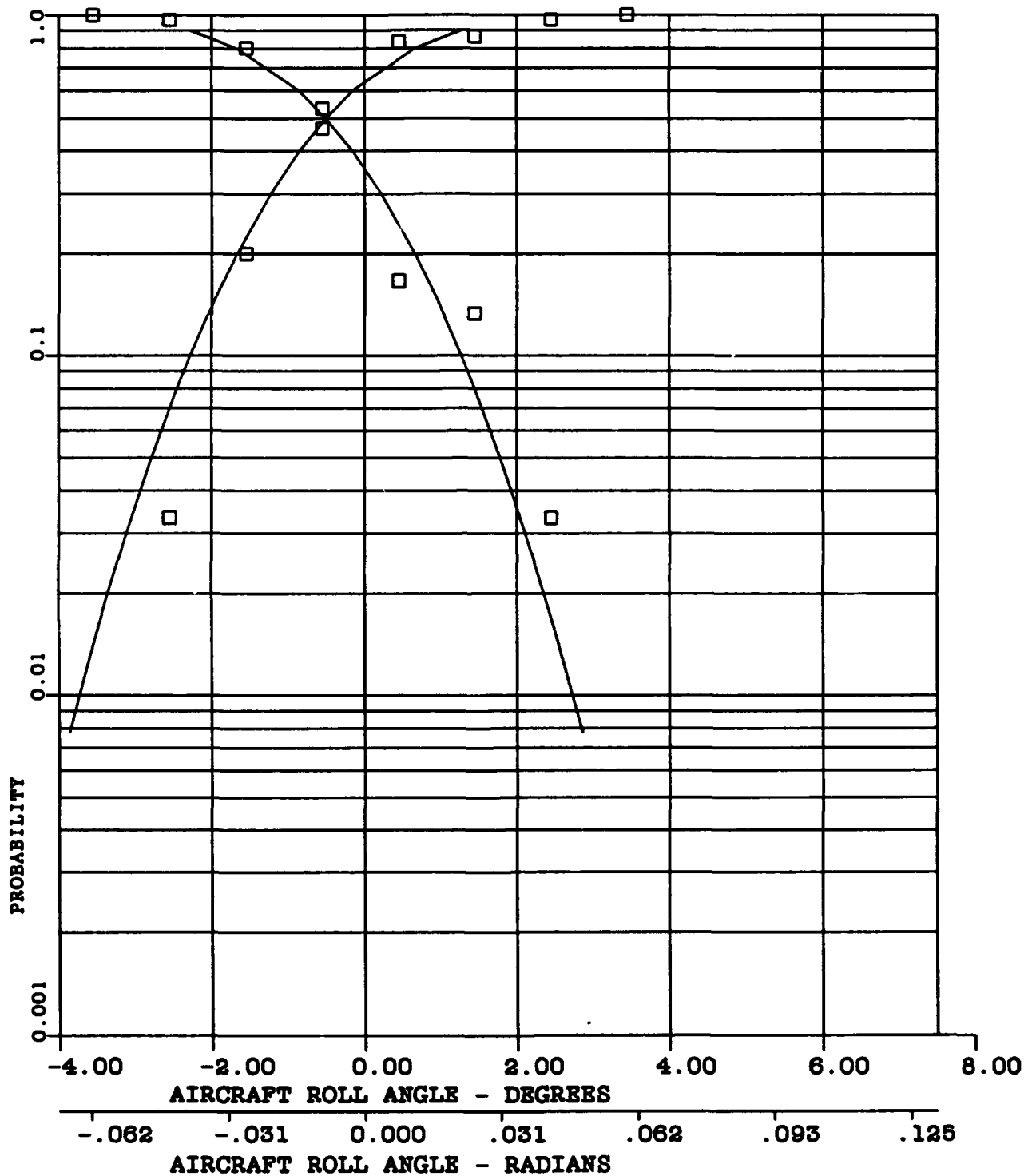


FIGURE B-31 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -245.81 FEET (74.92 METRES)

A3--.77

S-42.80 FEET (13.04 METRES)

A4-4.35

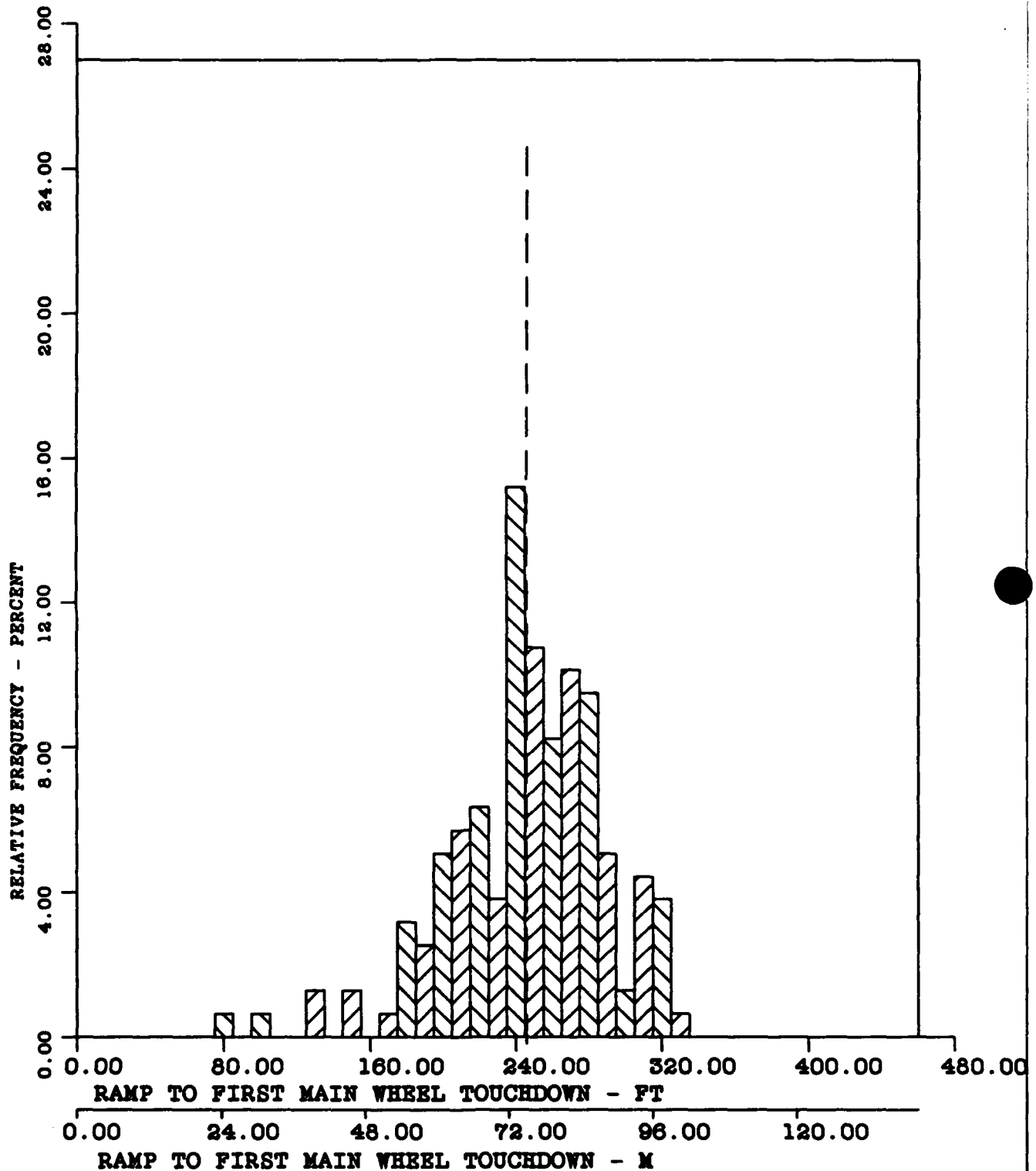


FIGURE B-32 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -245.81 FEET (74.92 METRES)

A3--.77

S-42.80 FEET (13.04 METRES)

A4-4.35

CURVE FITTED - PEARSON TYPE III

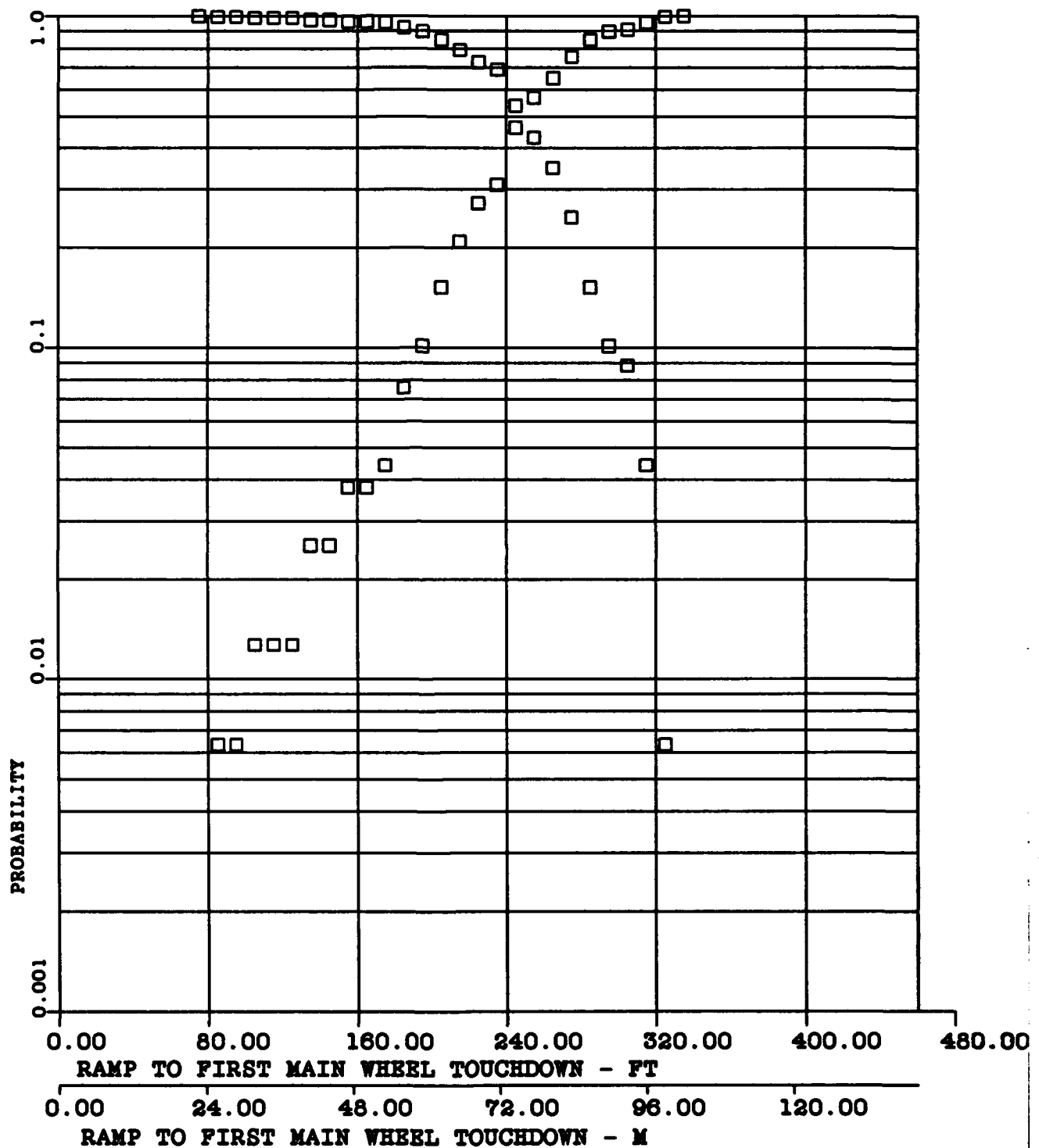


FIGURE B-33 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -12.91 FEET (-3.93 METRES)

A3-.20

S-4.16 FEET (1.26 METRES)

A4-3.69

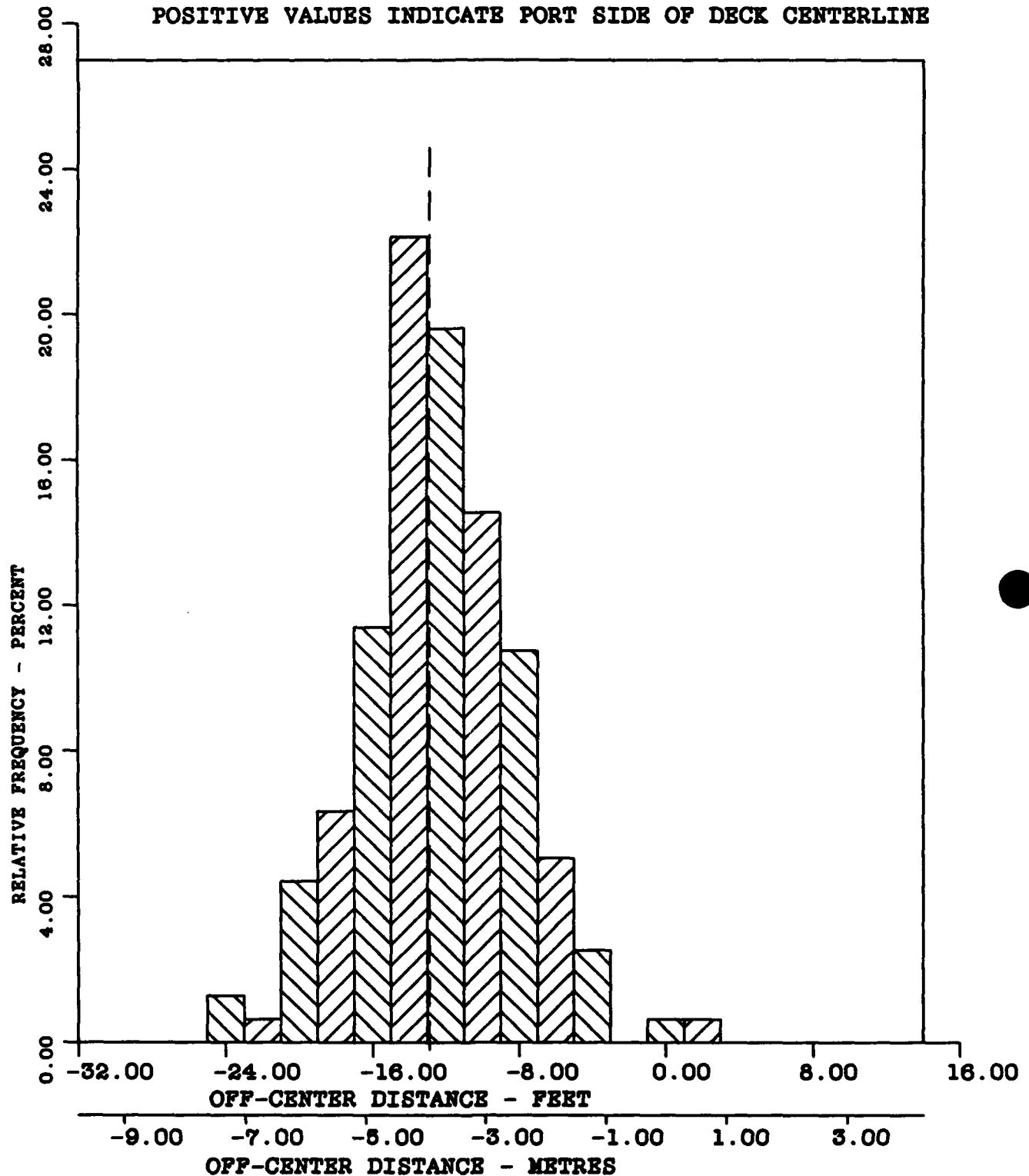


FIGURE B-34 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$  = -12.91 FEET (-3.93 METRES)

A3-.20

S=4.16 FEET (1.26 METRES)

A4-3.69

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

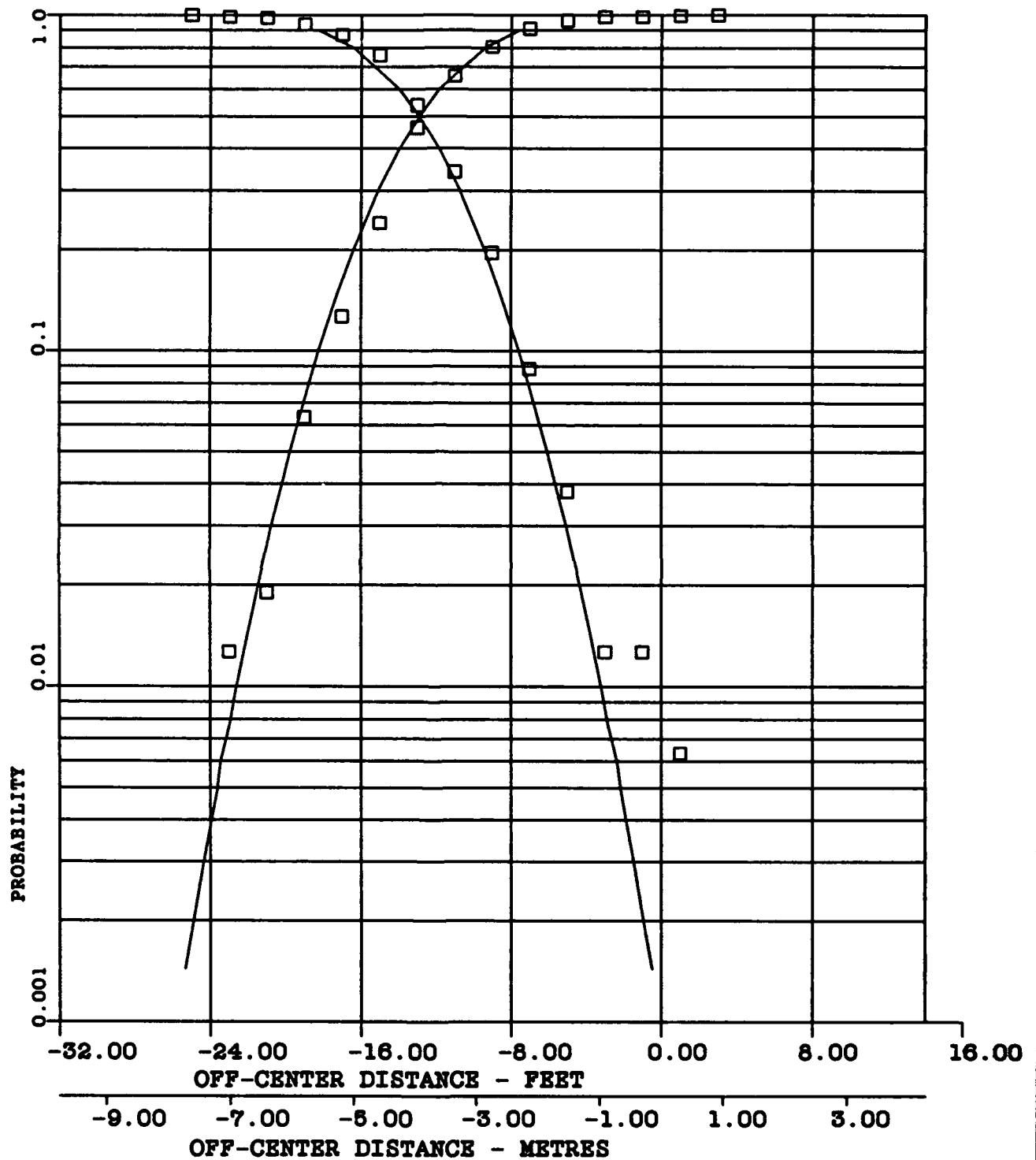


FIGURE B-35 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-113

 $\bar{X}$ -2.61

S-.91

A3--.07

A4-2.17

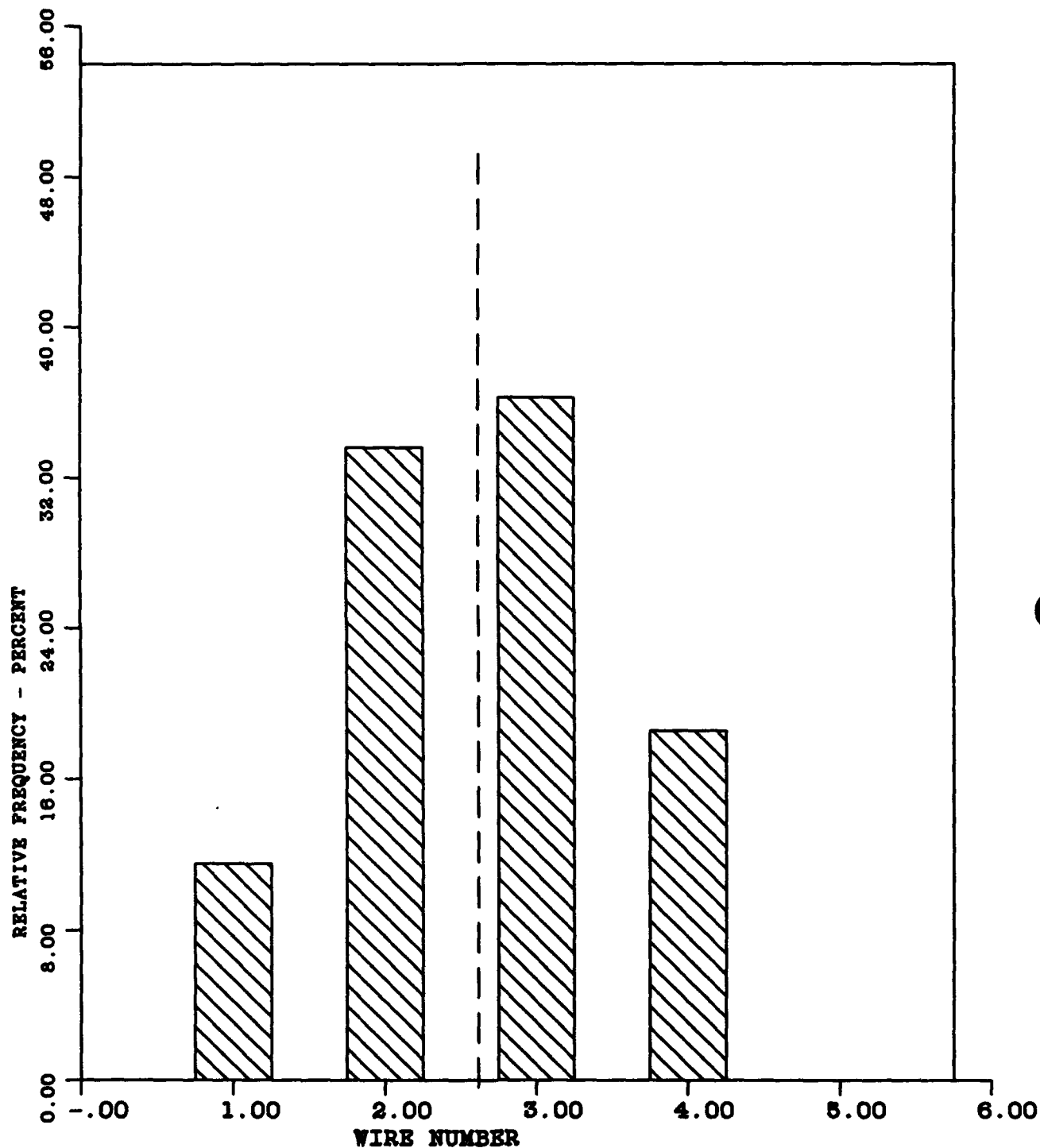


FIGURE B-36 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-157

 $\bar{X}$ -2.82 DEGREES (.049 RADIANS)

S-.77 DEGREES (.013 RADIANS)

A3--.60

A4-3.51

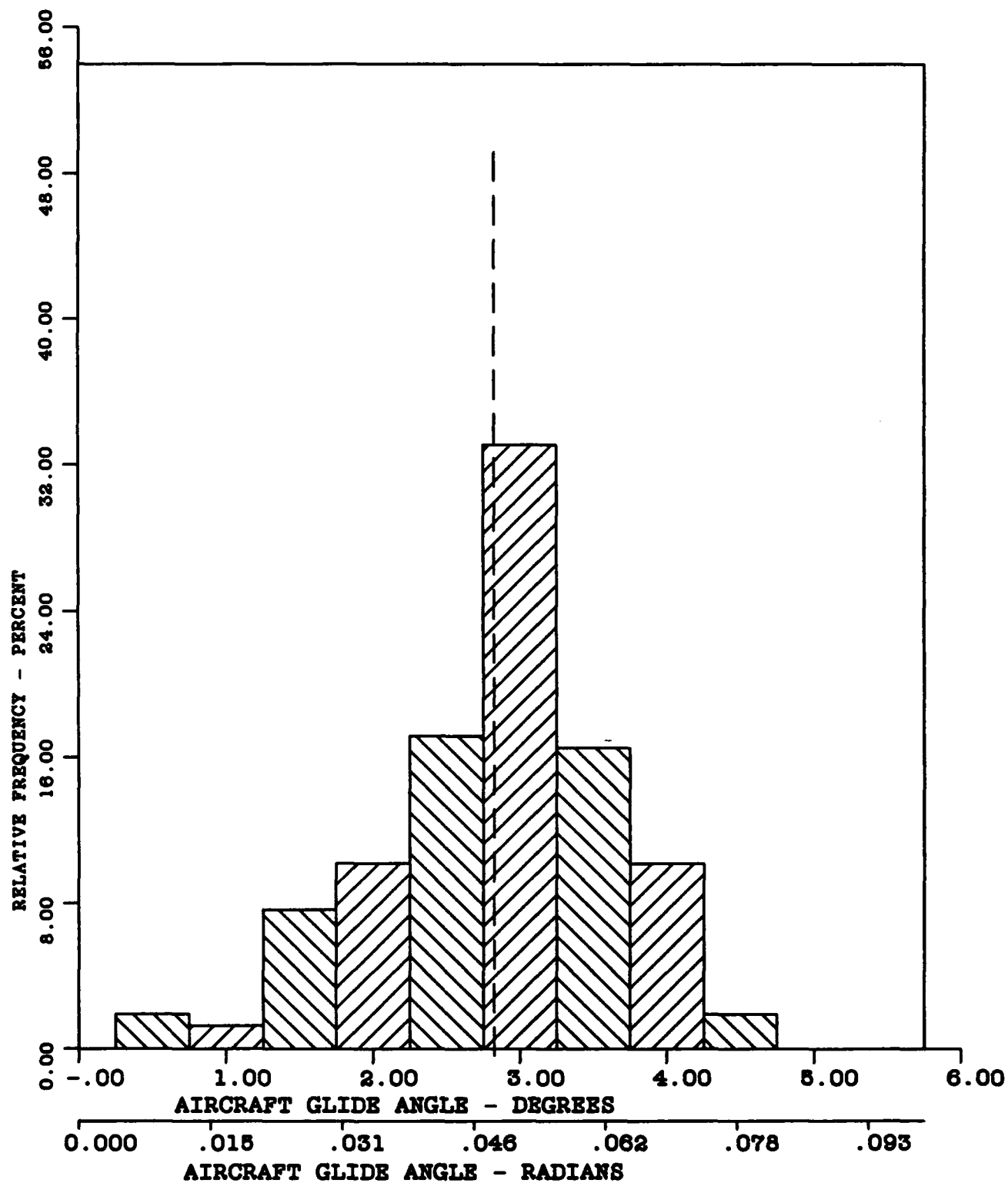


FIGURE B-37 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -3.14 DEGREES (.054 RADIANS)

S-.58 DEGREES (.010 RADIANS)

A3-.13

A4-2.76

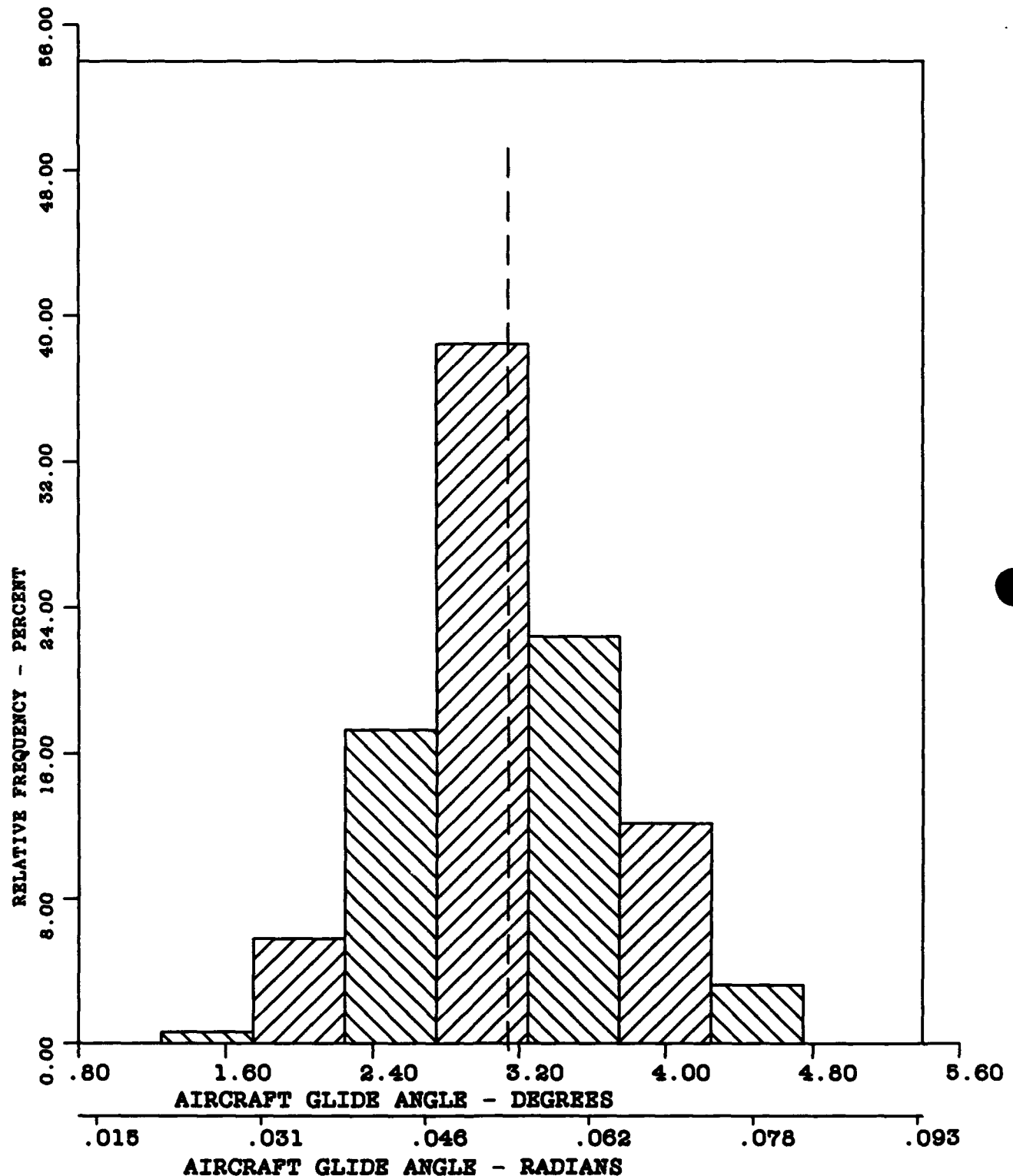


FIGURE B-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -10.65 FEET (3.24 METRES)

A3-.13

S-3.60 FEET (1.09 METRES)

A4-3.23

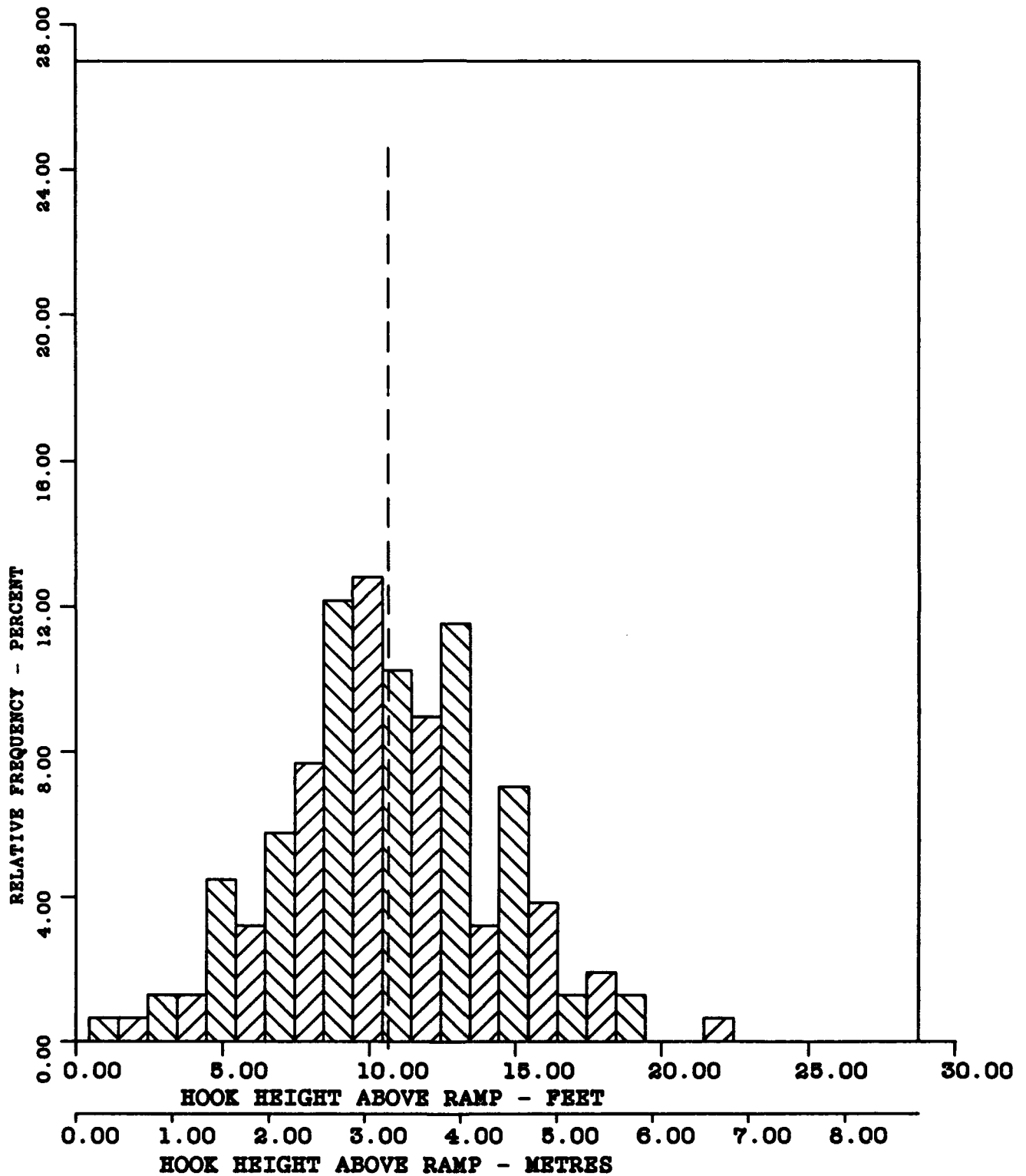


FIGURE B-39 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -10.65 FEET (3.24 METRES)

A3-.13

S-3.60 FEET (1.09 METRES)

A4-3.23

CURVE FITTED - NORMAL

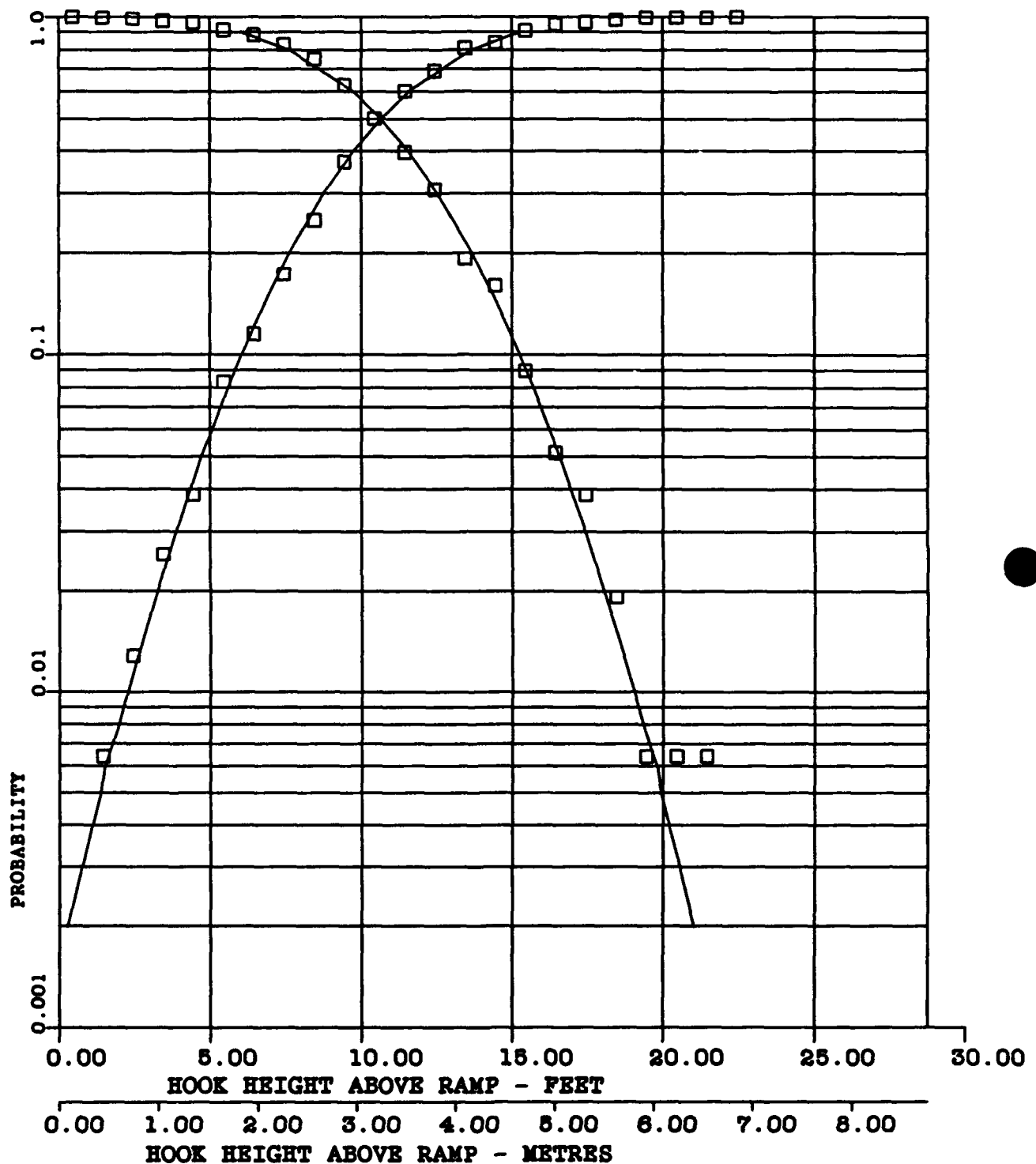


FIGURE B-40 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -112.58 KNOTS (57.91 METRES/SEC)

A3--.00

S-4.44 KNOTS (2.28 METRES/SEC)

A4-2.65

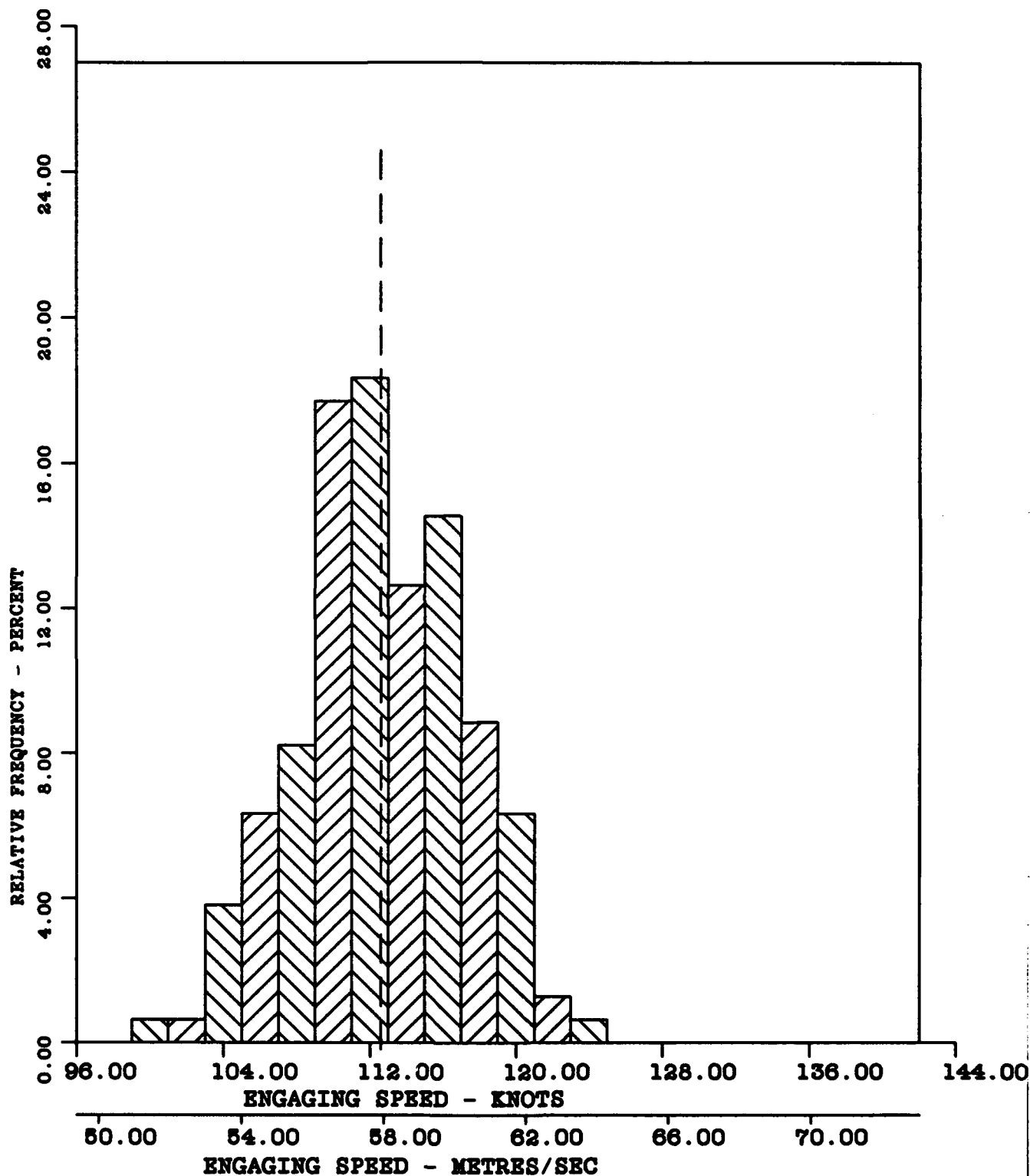


FIGURE B-41 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -112.58 KNOTS (57.91 METRES/SEC)

A3--.00

S-4.44 KNOTS (2.28 METRES/SEC)

A4-2.65

CURVE FITTED - NORMAL

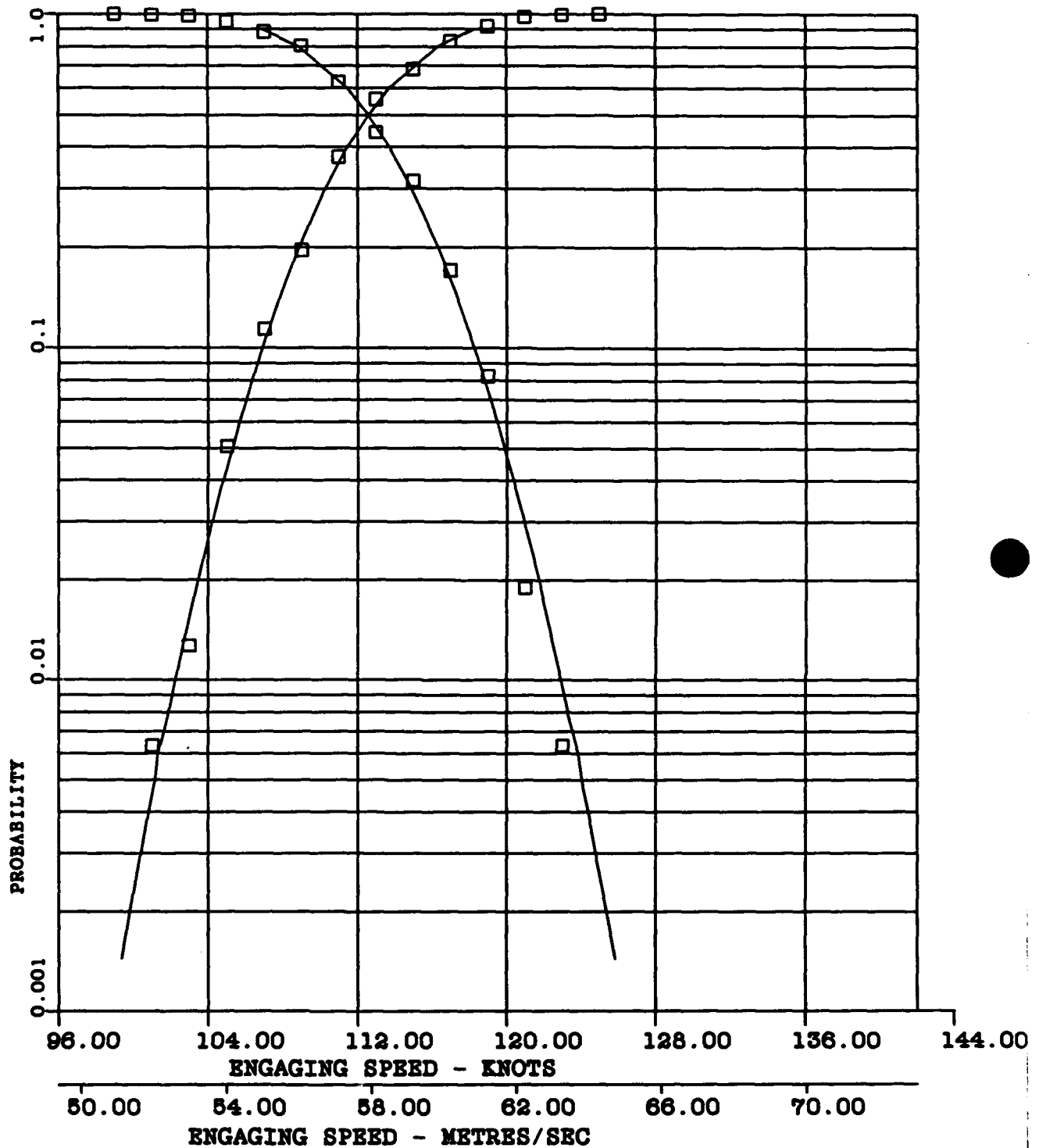


FIGURE B-42 PROBABILITY DISTRIBUTION OF ENGAGING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -120.50 KNOTS (61.98 METRES/SEC)

A3--.34

S-2.06 KNOTS (1.06 METRES/SEC)

A4-2.24

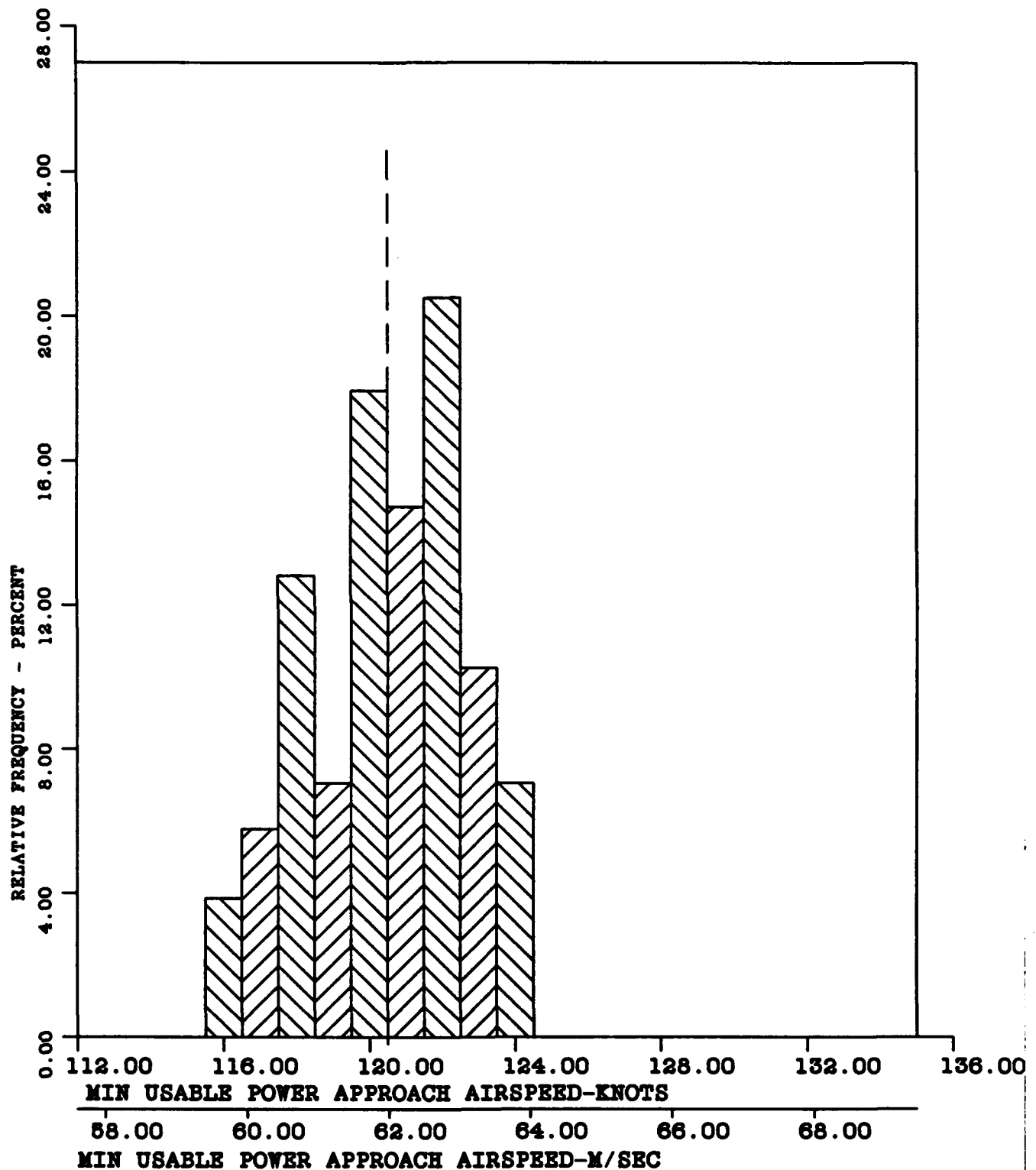


FIGURE B-43 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -1.16

S-.03

A3-.03

A4-2.64

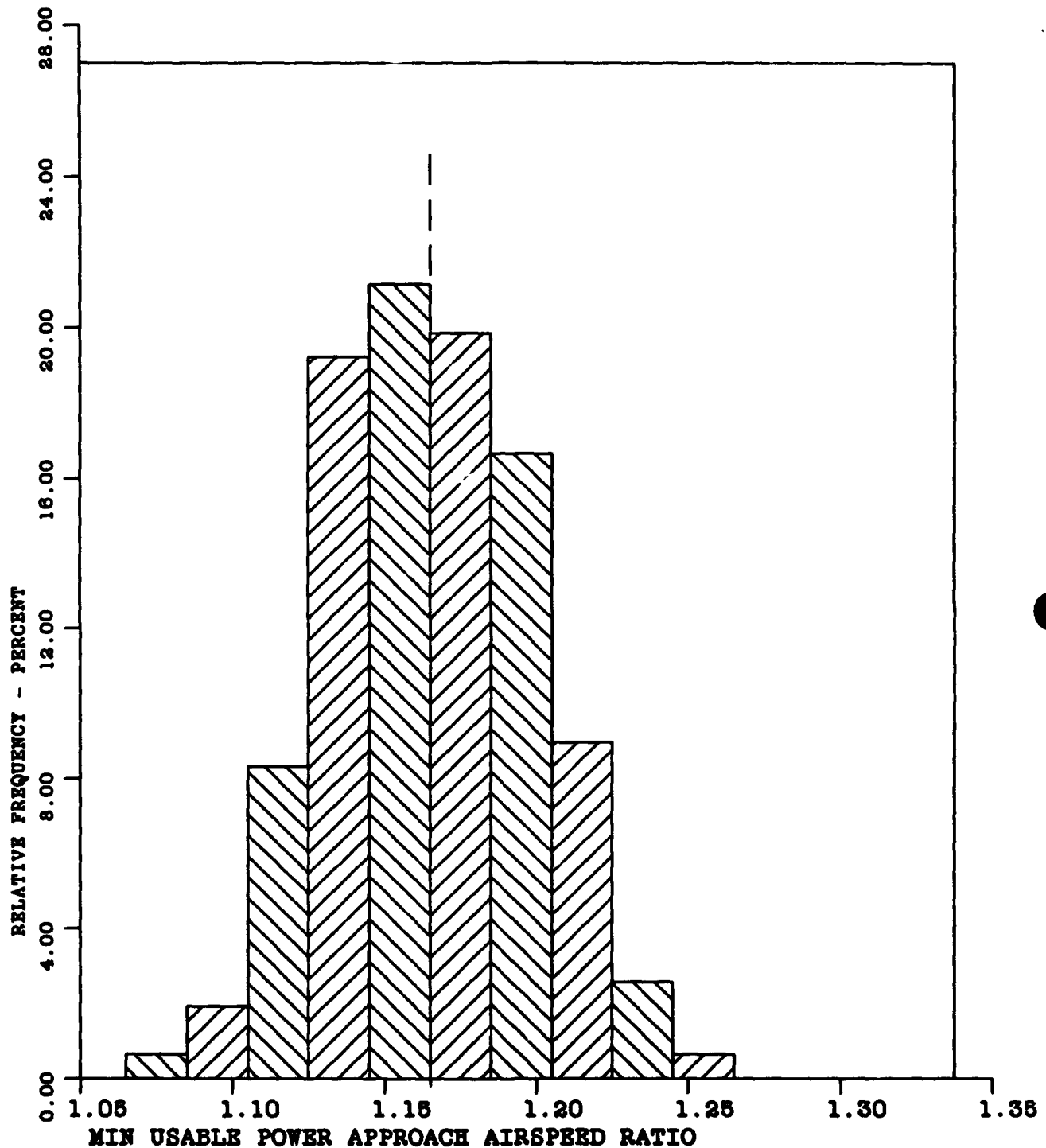


FIGURE B-44 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-153

 $\bar{X}$ -.31 DEGREES (-.005 RADIANS)

A3-.17

S-1.17 DEGREES (.020 RADIANS)

A4-2.54

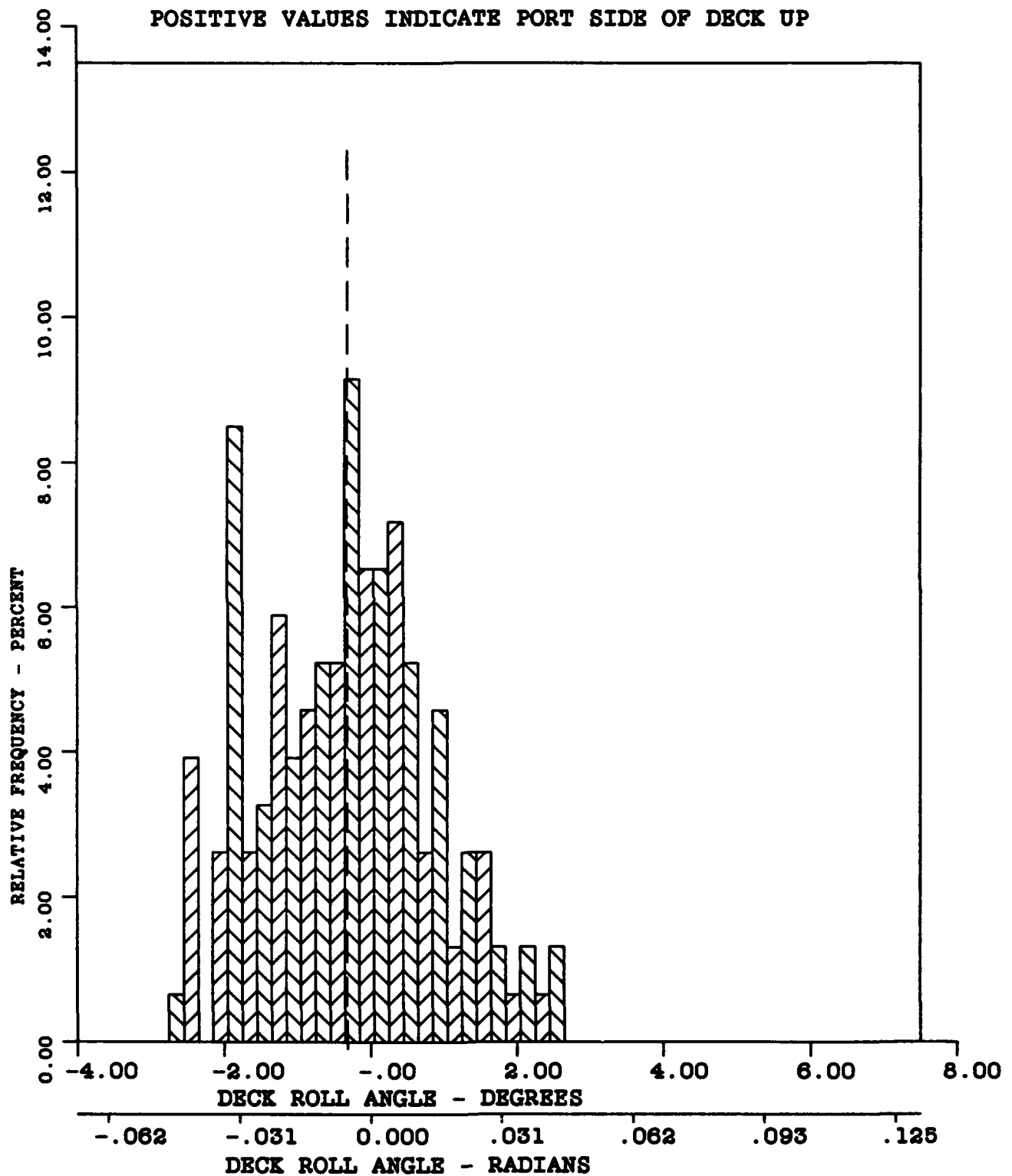


FIGURE B-45 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-66)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-153

 $\bar{X}$  = -0.31 DEGREES (-.005 RADIANS)

A3 = .17

S = 1.17 DEGREES (.020 RADIANS)

A4 = 2.54

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

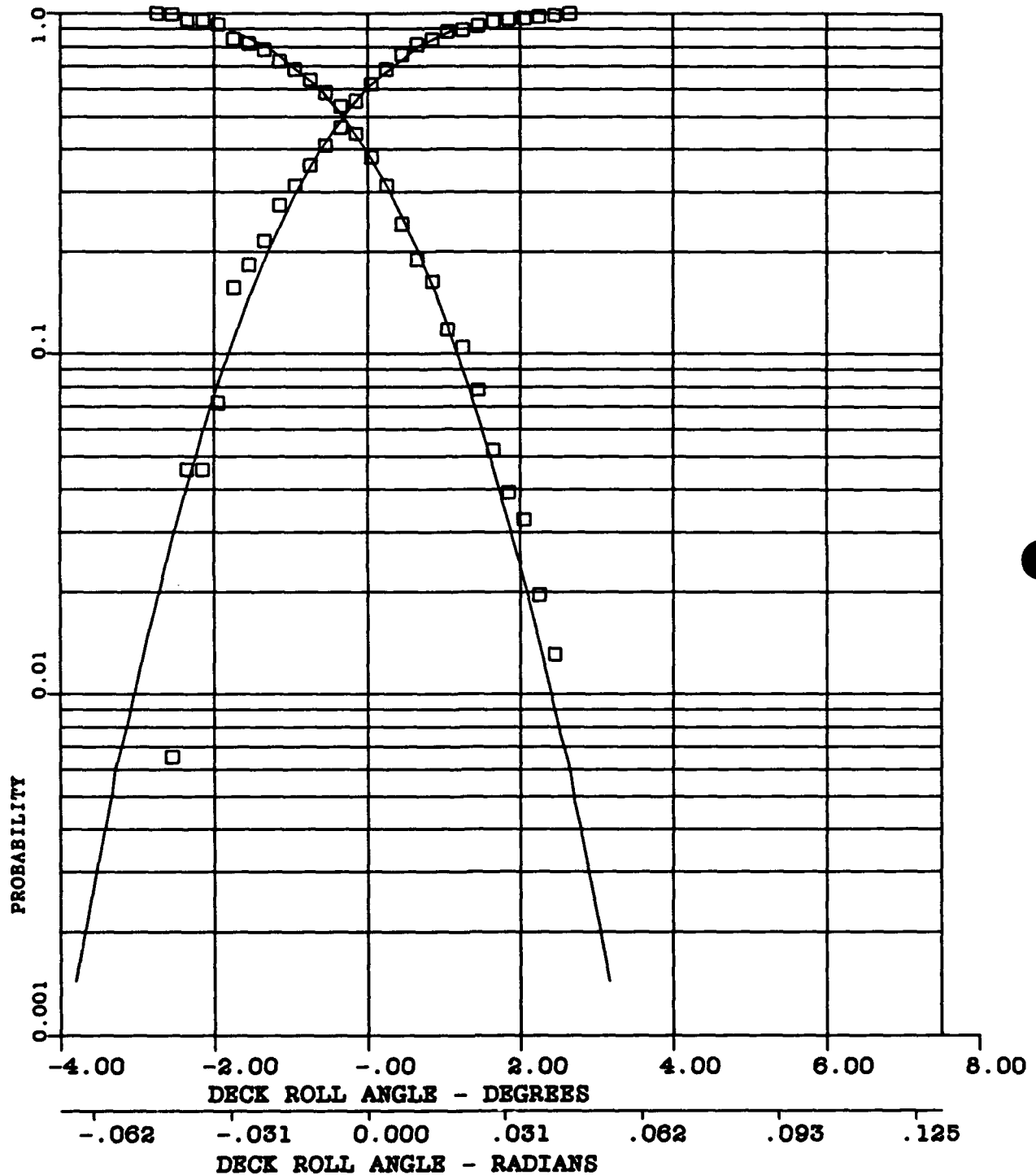


FIGURE B-46 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-163

 $\bar{X}$  = -.29 DEGREES (-.005 RADIANS)

A3 = .36

S = .19 DEGREES (.003 RADIANS)

A4 = 3.63

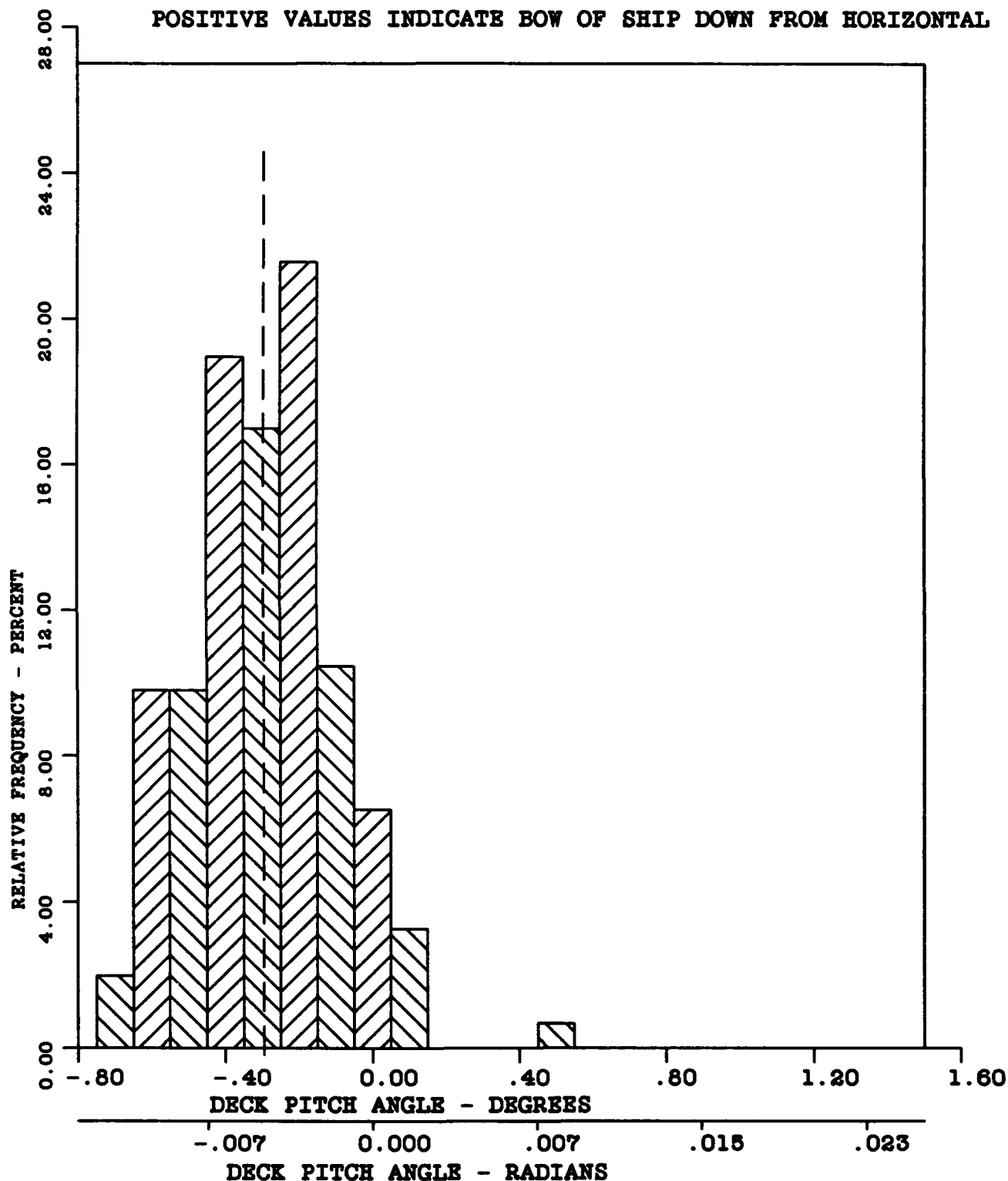


FIGURE B-47 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-153

 $\bar{X}$ -.29 DEGREES (-.005 RADIANS)

A3-.36

S-.19 DEGREES (.003 RADIANS)

A4-3.63

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

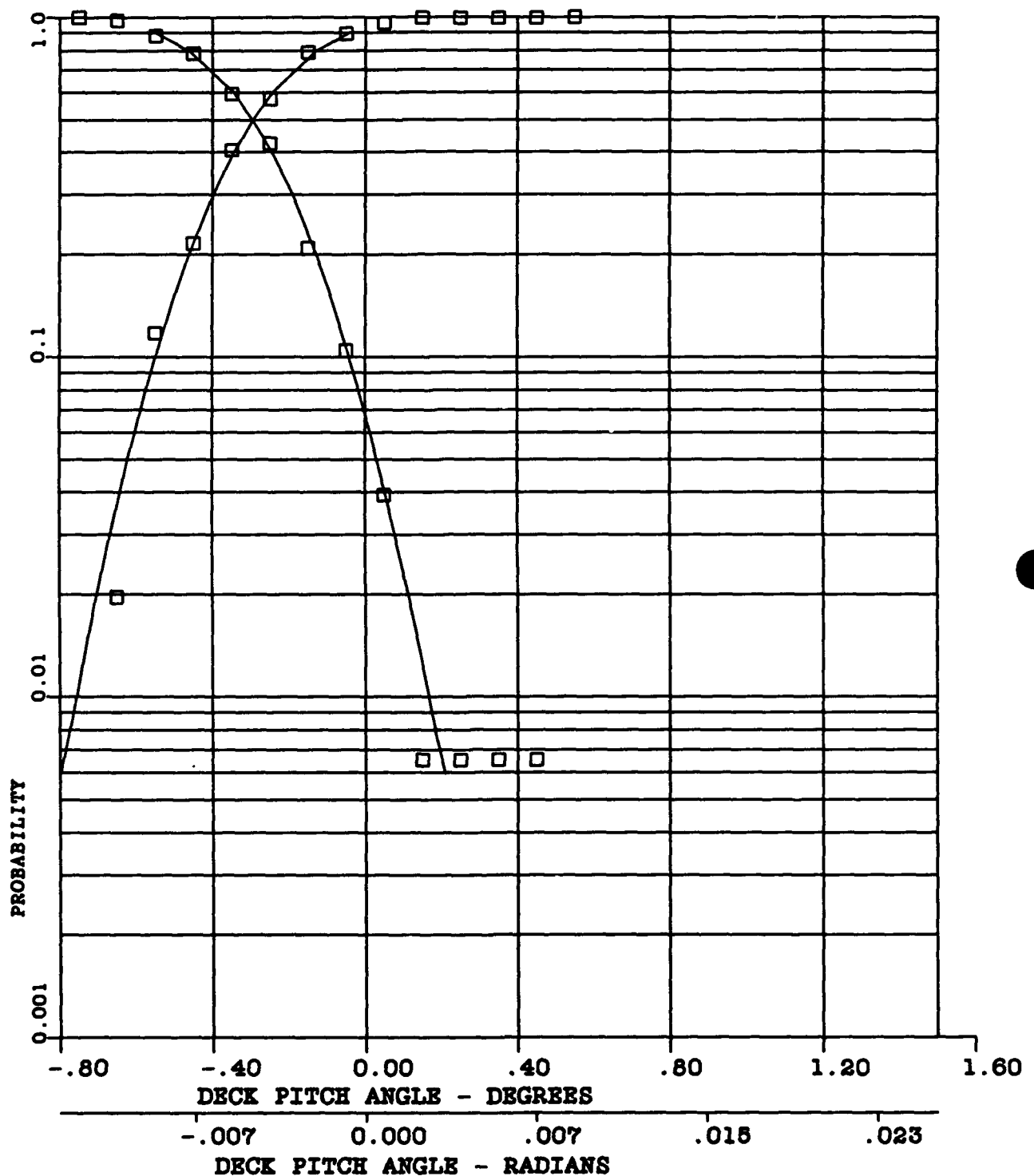


FIGURE B-48 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (.061 RADIANS)

N-156

 $\bar{X}$ -47788.89 POUNDS (21676.90 KILOGRAMS)

A3--.31

S-1629.22 POUNDS (739.01 KILOGRAMS)

A4-2.22

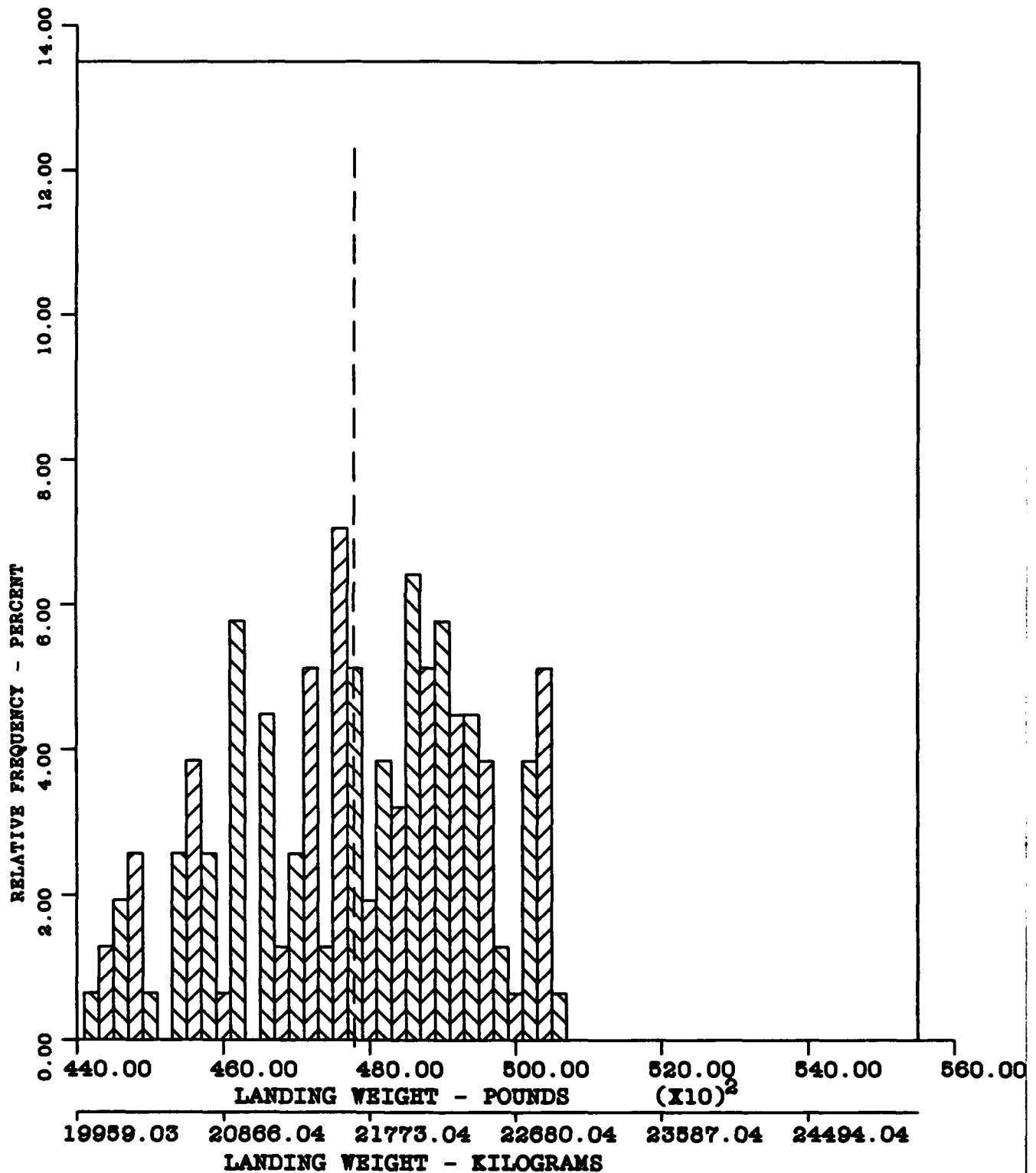


FIGURE B-49 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-157

 $\bar{X}$ =1.78 DEG/SEC (.031 RAD/SEC)

A3-1.09

S=2.17 DEG/SEC (.038 RAD/SEC)

A4-3.81

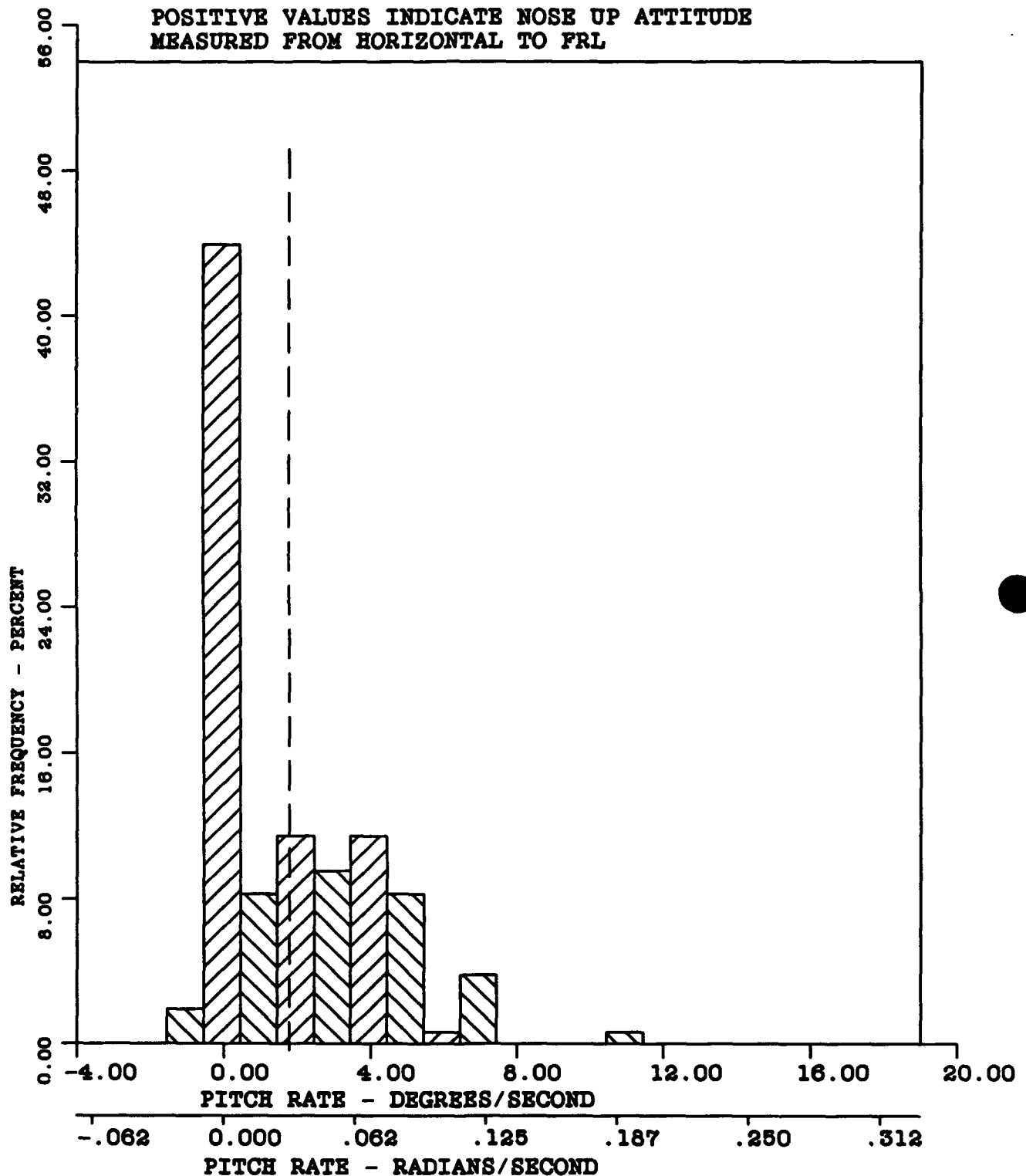


FIGURE B-50 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-157

 $\bar{X}$ -1.78 DEG/SEC (.031 RAD/SEC)

A3-1.09

S-2.17 DEG/SEC (.038 RAD/SEC)

A4-3.81

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE NOSE UP ATTITUDE

MEASURED FROM HORIZONTAL TO FRL

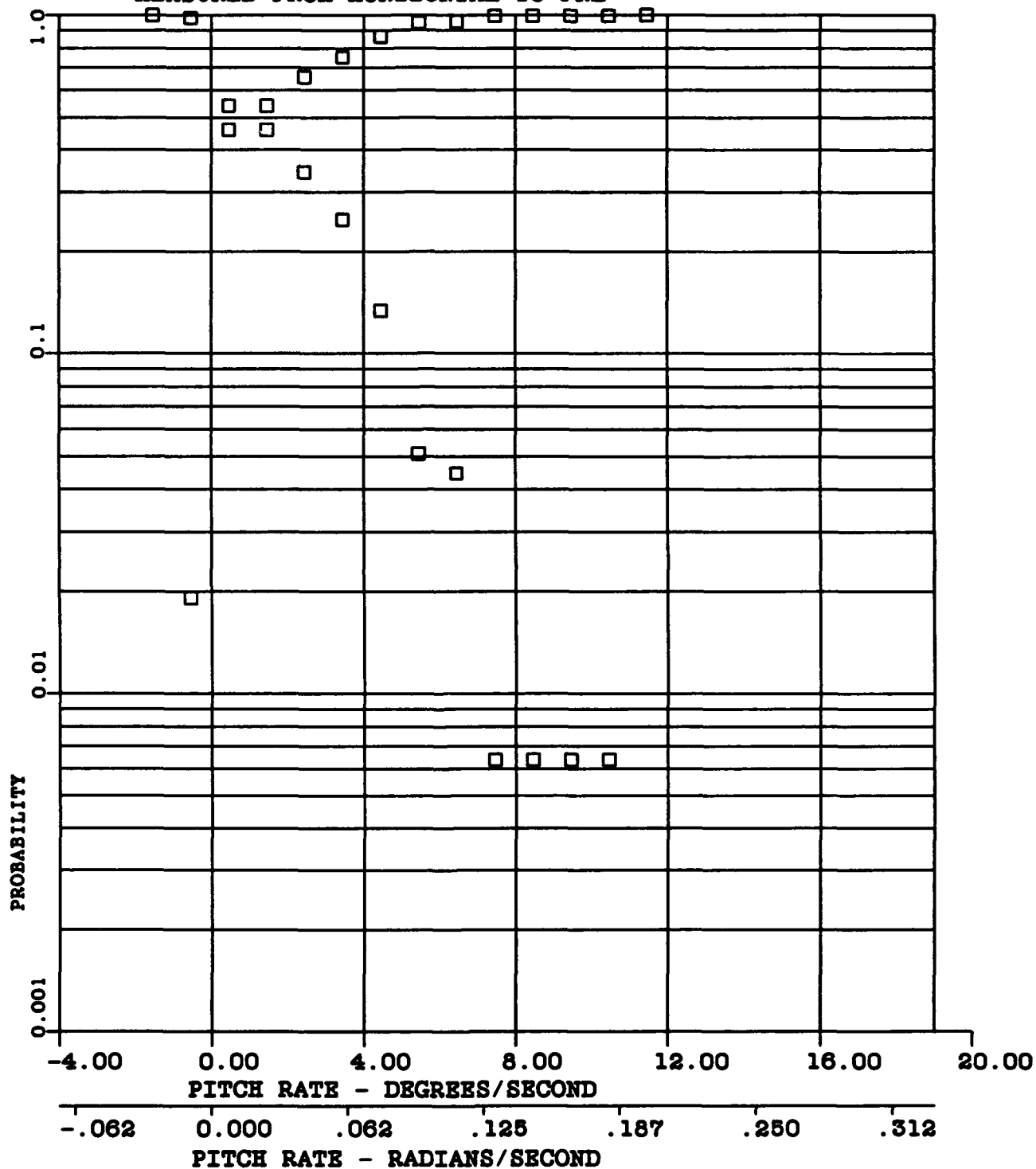


FIGURE B-51 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -3.13 DEGREES (-.054 RADIANS)

A3--1.01

S-1.10 DEGREES (.019 RADIANS)

A4-6.03

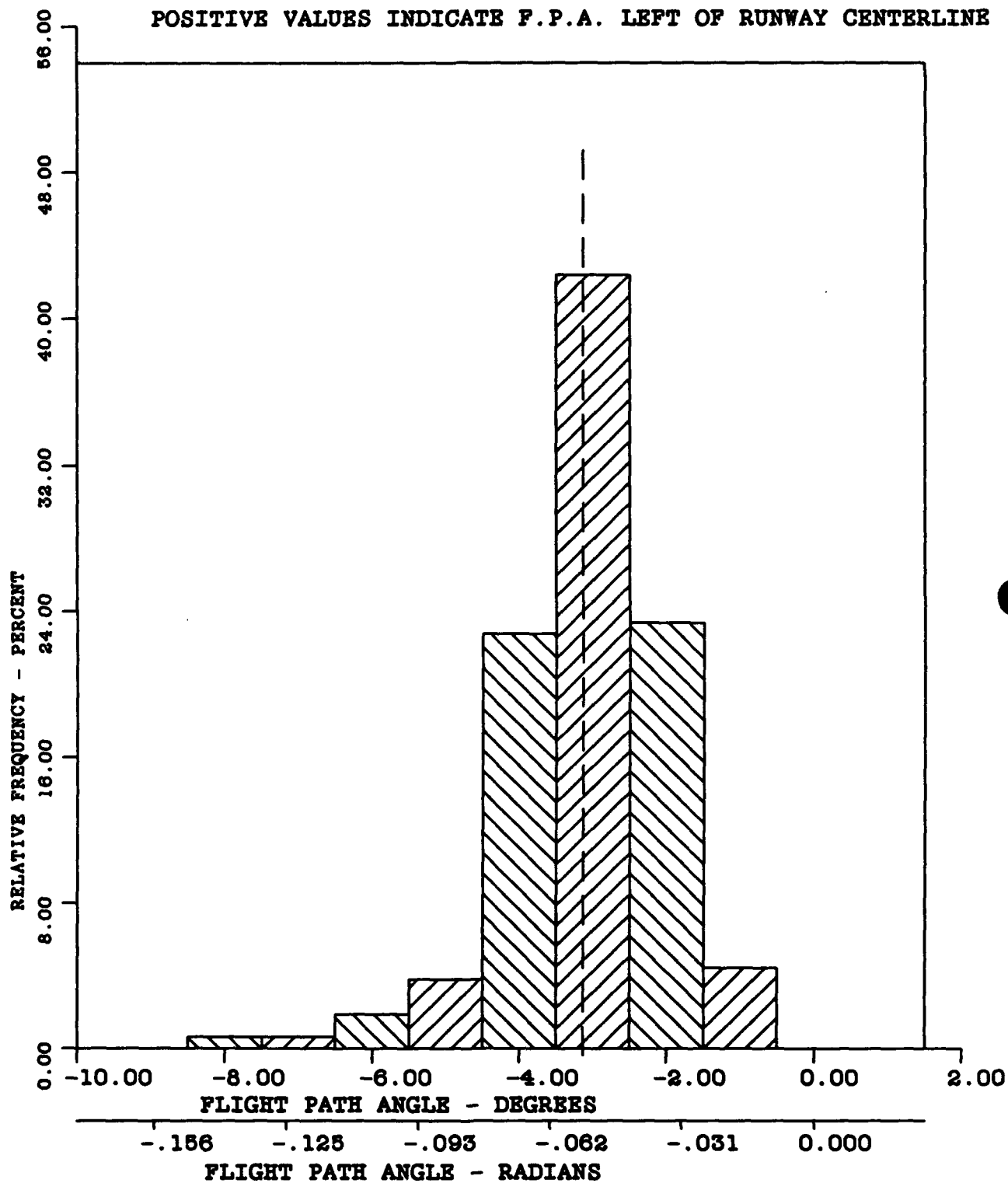


FIGURE B-52 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ --3.13 DEGREES (-.054 RADIANS)

A3--1.01

S-1.10 DEGREES (.019 RADIANS)

A4-6.03

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

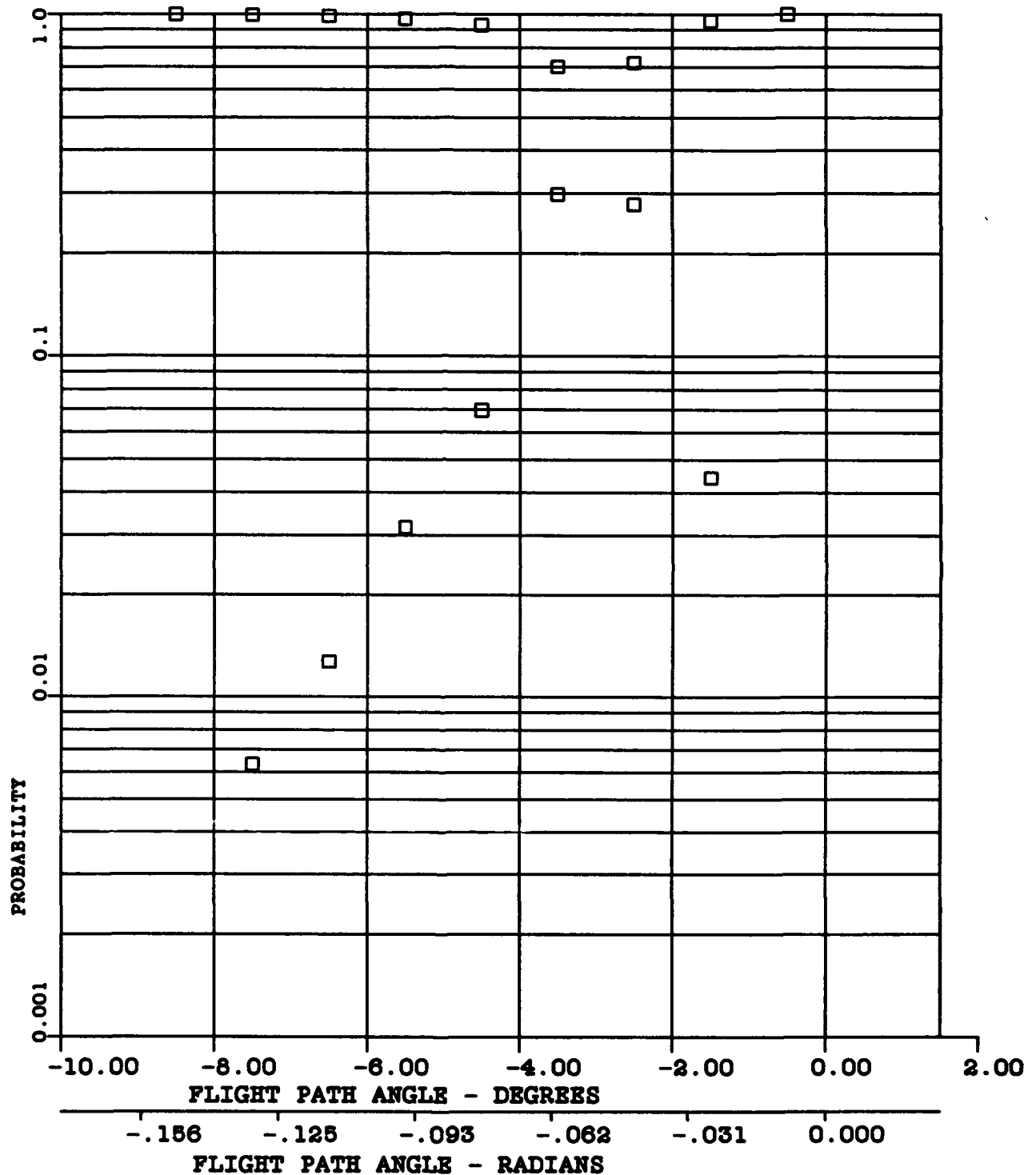


FIGURE B-53 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -4.88 DEGREES (.085 RADIANS)

A3--.26

S-2.16 DEGREES (.037 RADIANS)

A4-3.39

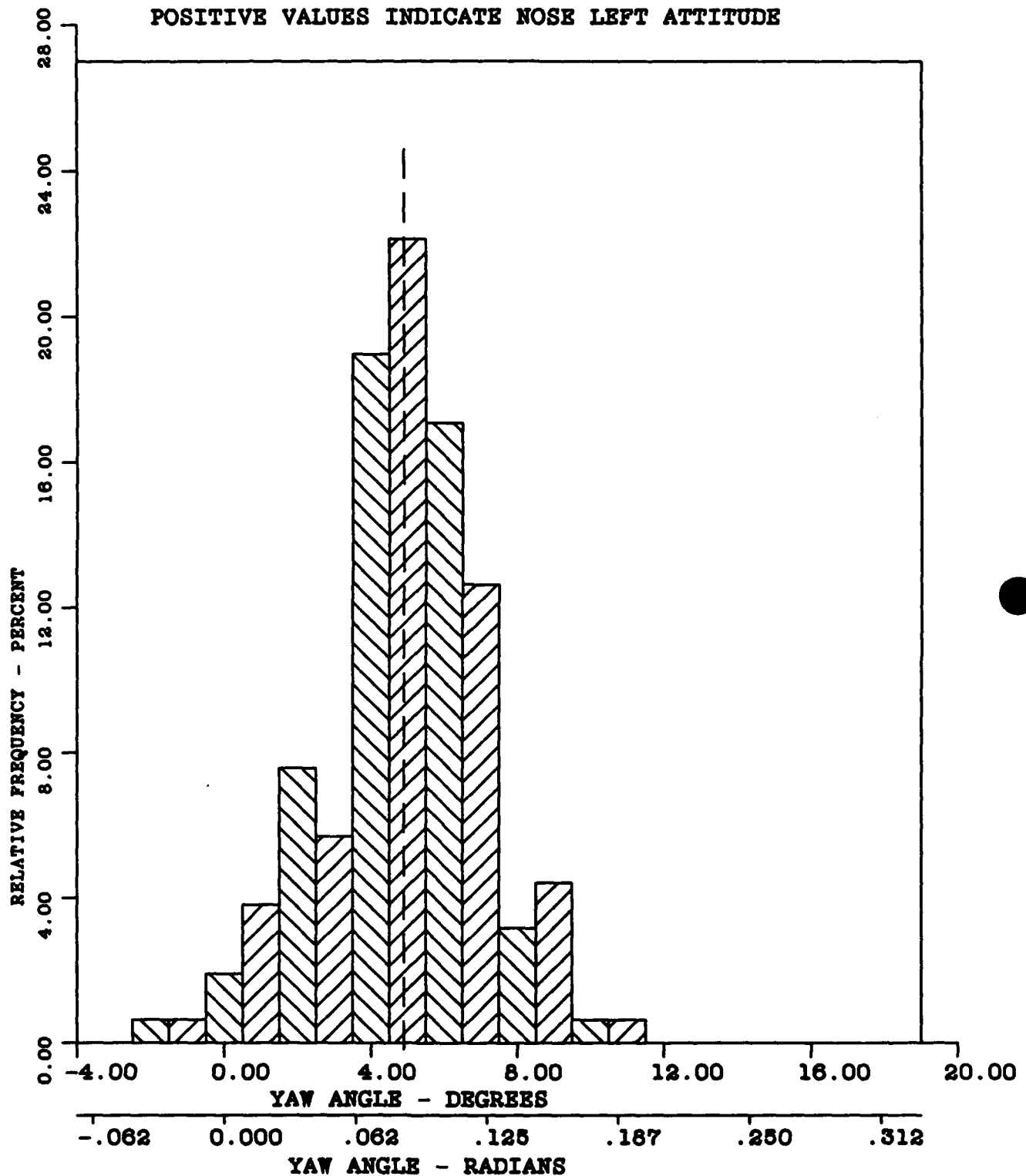


FIGURE B-54 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-158

 $\bar{X}$ -4.88 DEGREES (.085 RADIANS)

A3--.26

S-2.16 DEGREES (.037 RADIANS)

A4-3.39

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

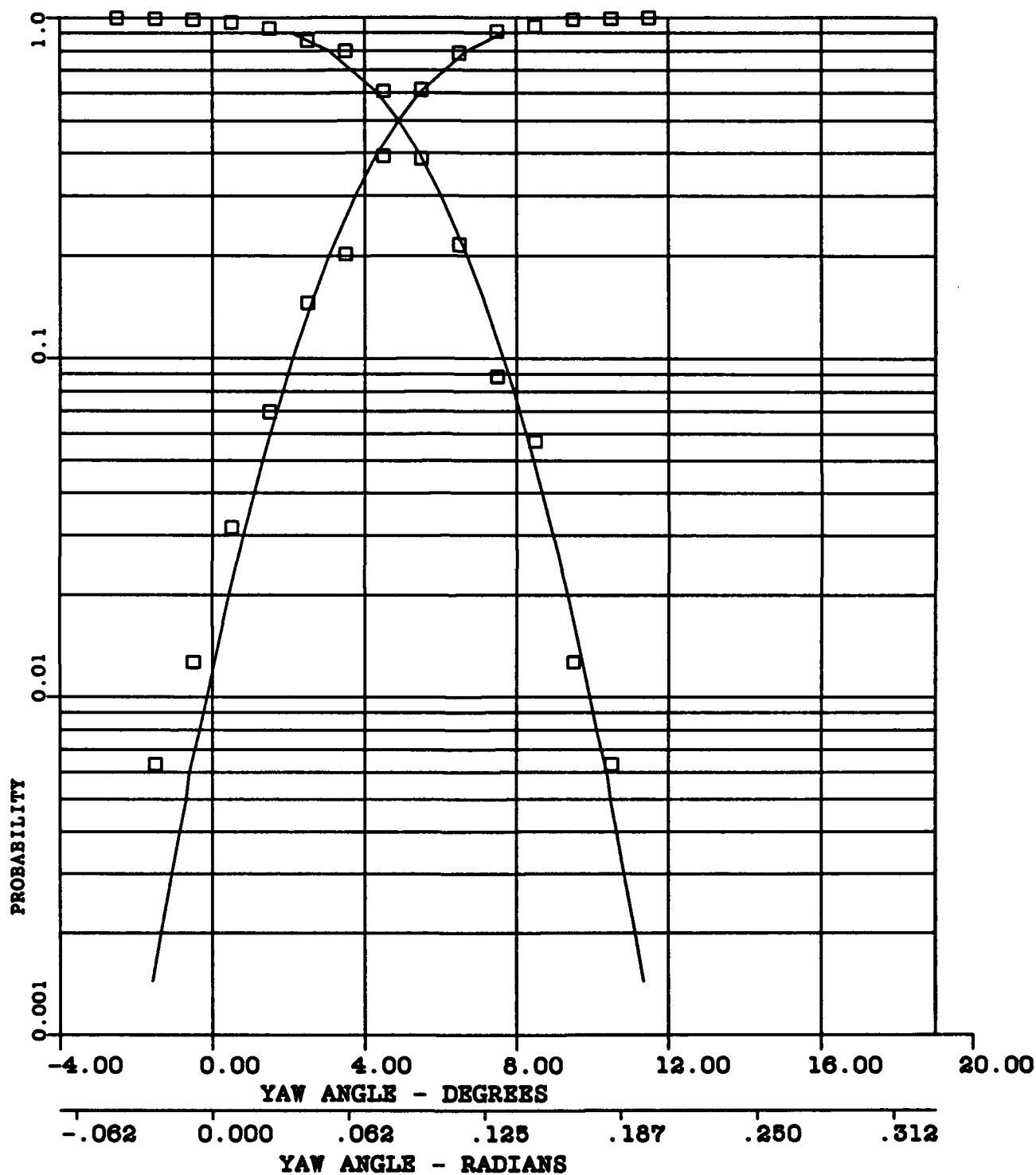


FIGURE B-55 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX C**

**F-14A AIRCRAFT**

**NIGHT CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

Appendix C:

Frequency and Probability Distributions,  
F-14A Aircraft, Night Landings

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MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -30.95 KNOTS (15.92 METRES/SEC)

A3--.08

S-5.00 KNOTS (2.57 METRES/SEC)

A4-1.38

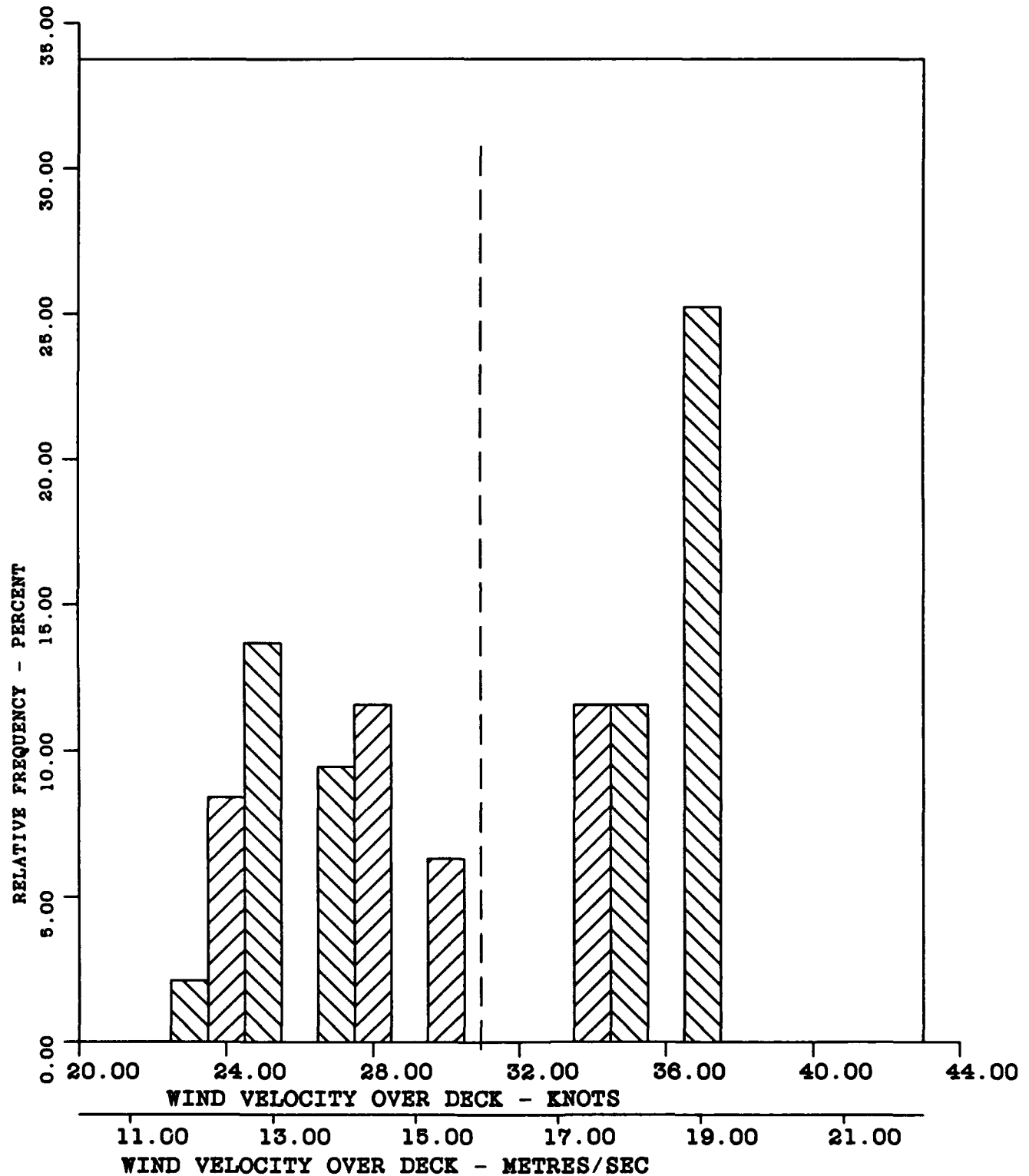


FIGURE C-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -30.95 KNOTS (16.92 METRES/SEC)

A3--.08

S-5.00 KNOTS (2.67 METRES/SEC)

A4-1.38

CURVE FITTED - NORMAL

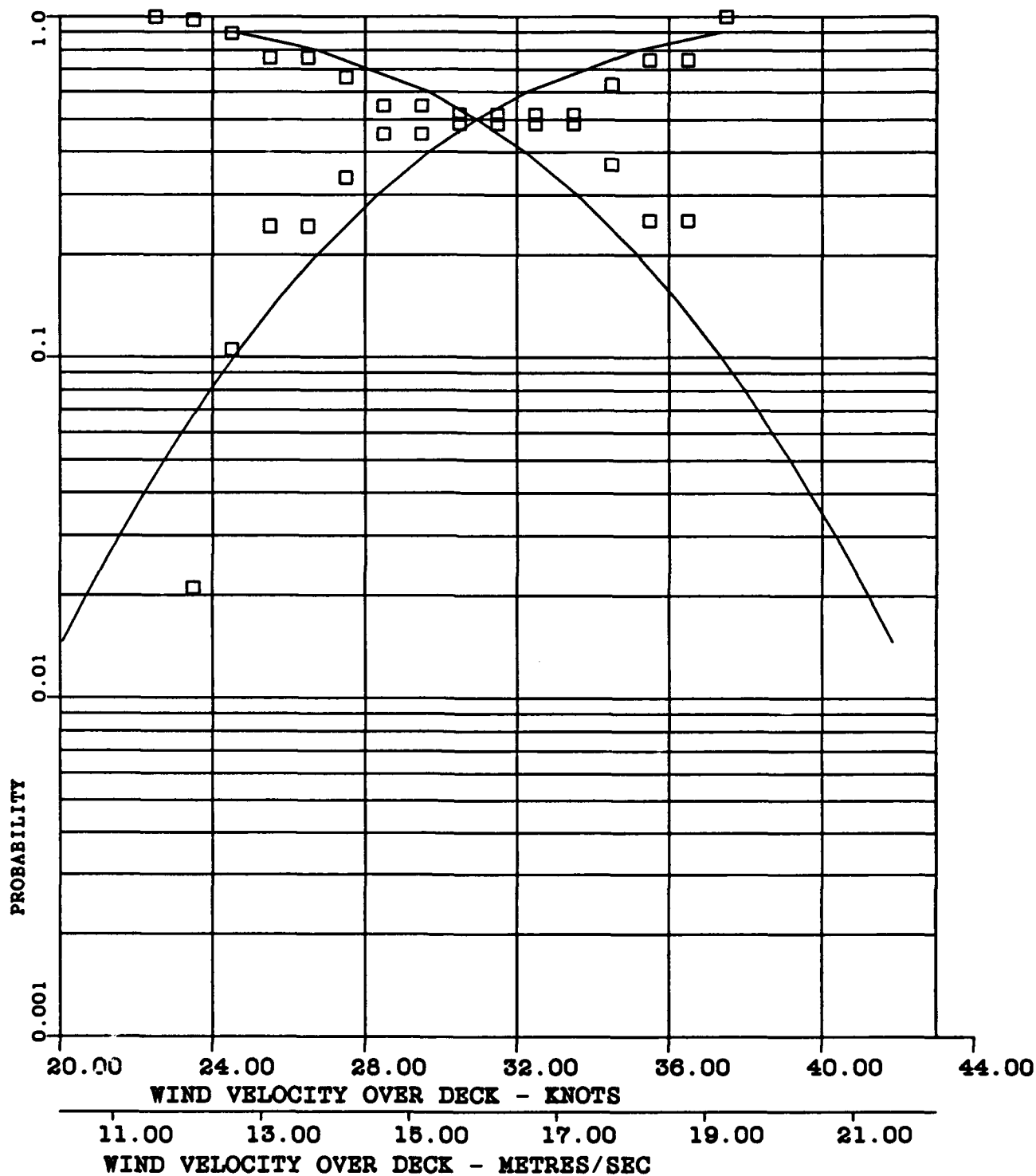


FIGURE C-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -139.66 KNOTS (71.84 METRES/SEC)

A3-1.15

S-5.87 KNOTS (3.02 METRES/SEC)

A4-6.93

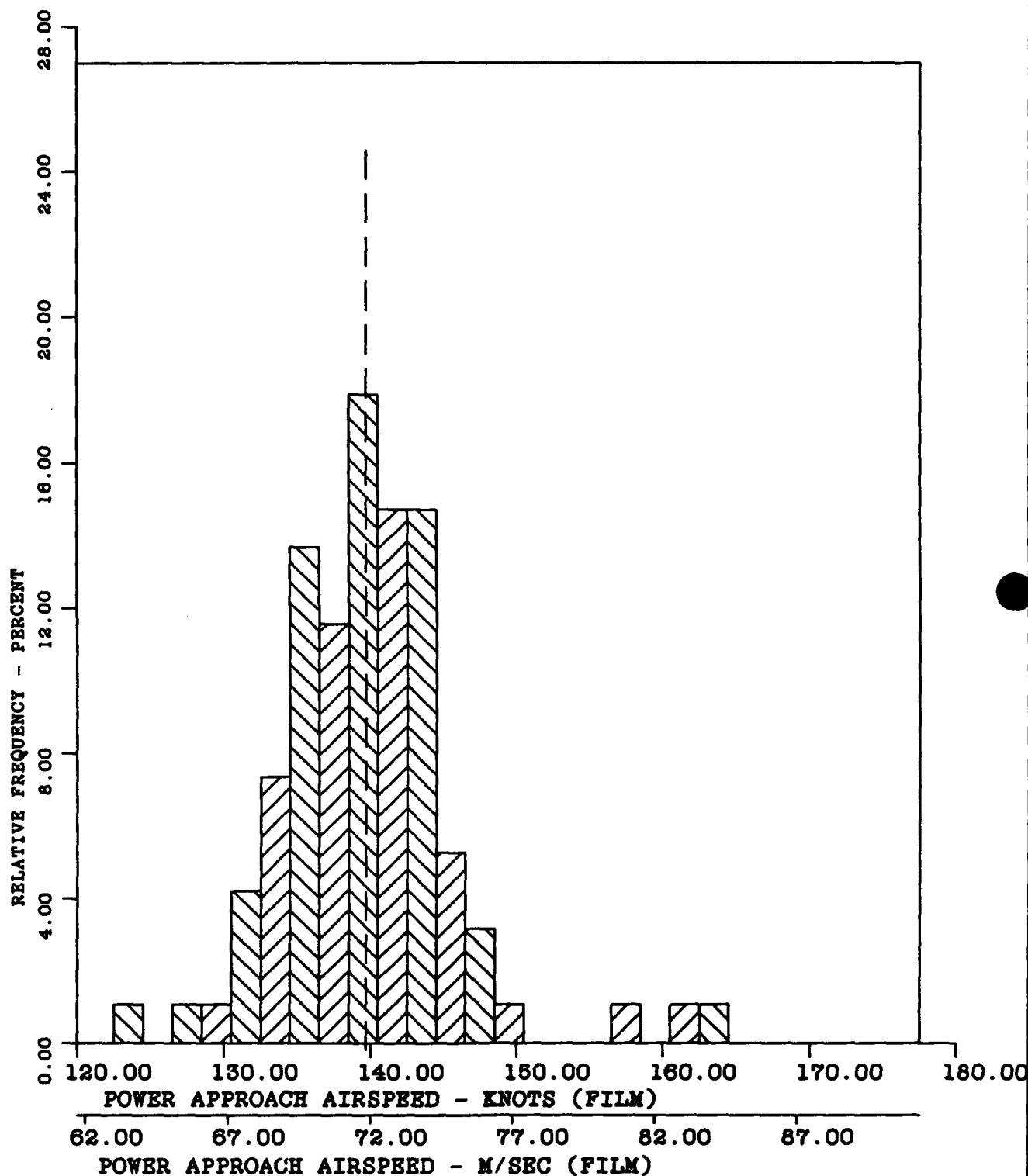


FIGURE C-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -139.66 KNOTS (71.84 METRES/SEC)

A3-1.15

S-5.87 KNOTS (3.02 METRES/SEC)

A4-6.93

CURVE FITTED - PEARSON TYPE III

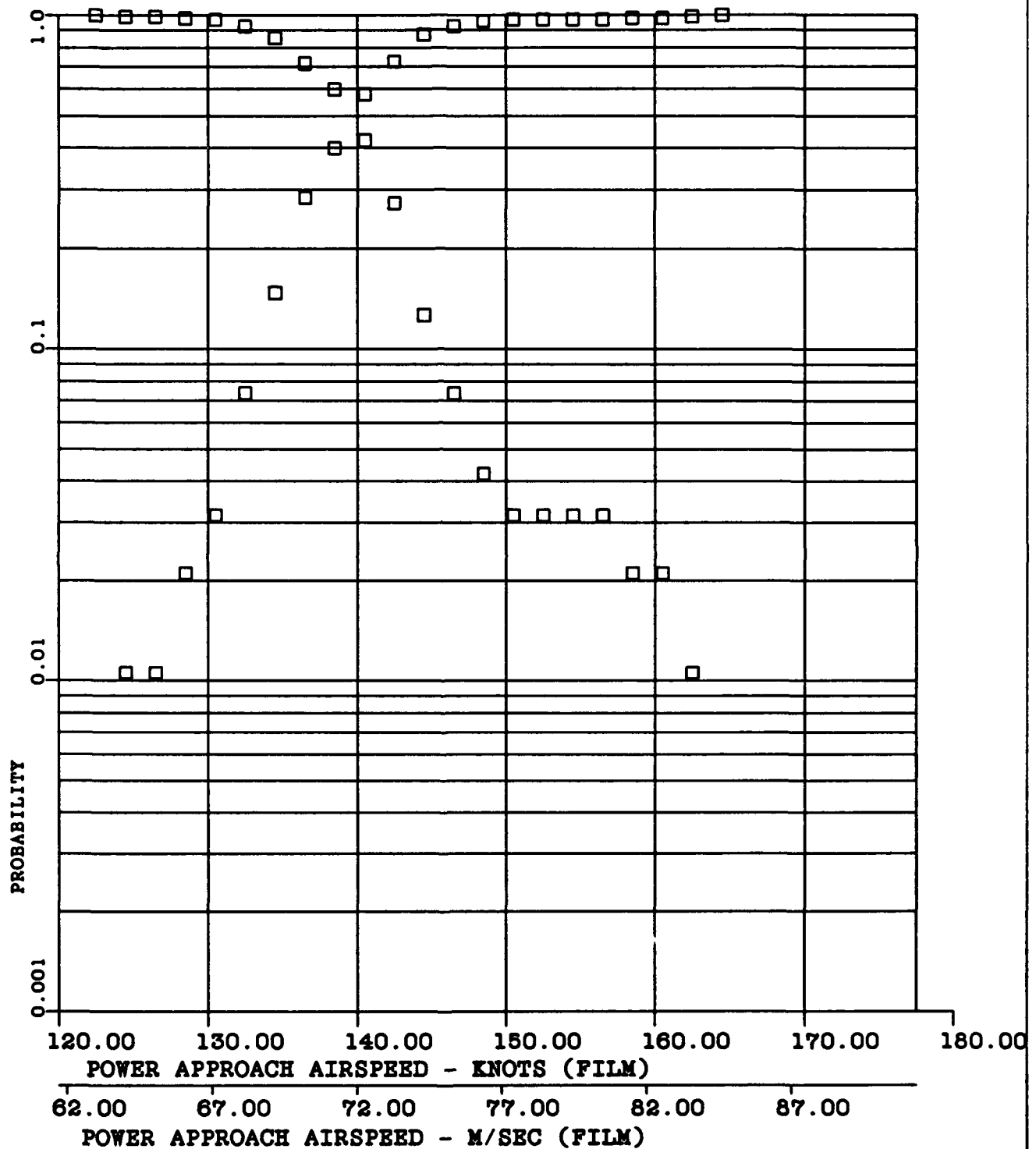


FIGURE C-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -10.85 FEET/SEC (3.30 METRES/SEC)

A3--.05

S-2.74 FEET/SEC (.83 METRES/SEC)

A4-3.74

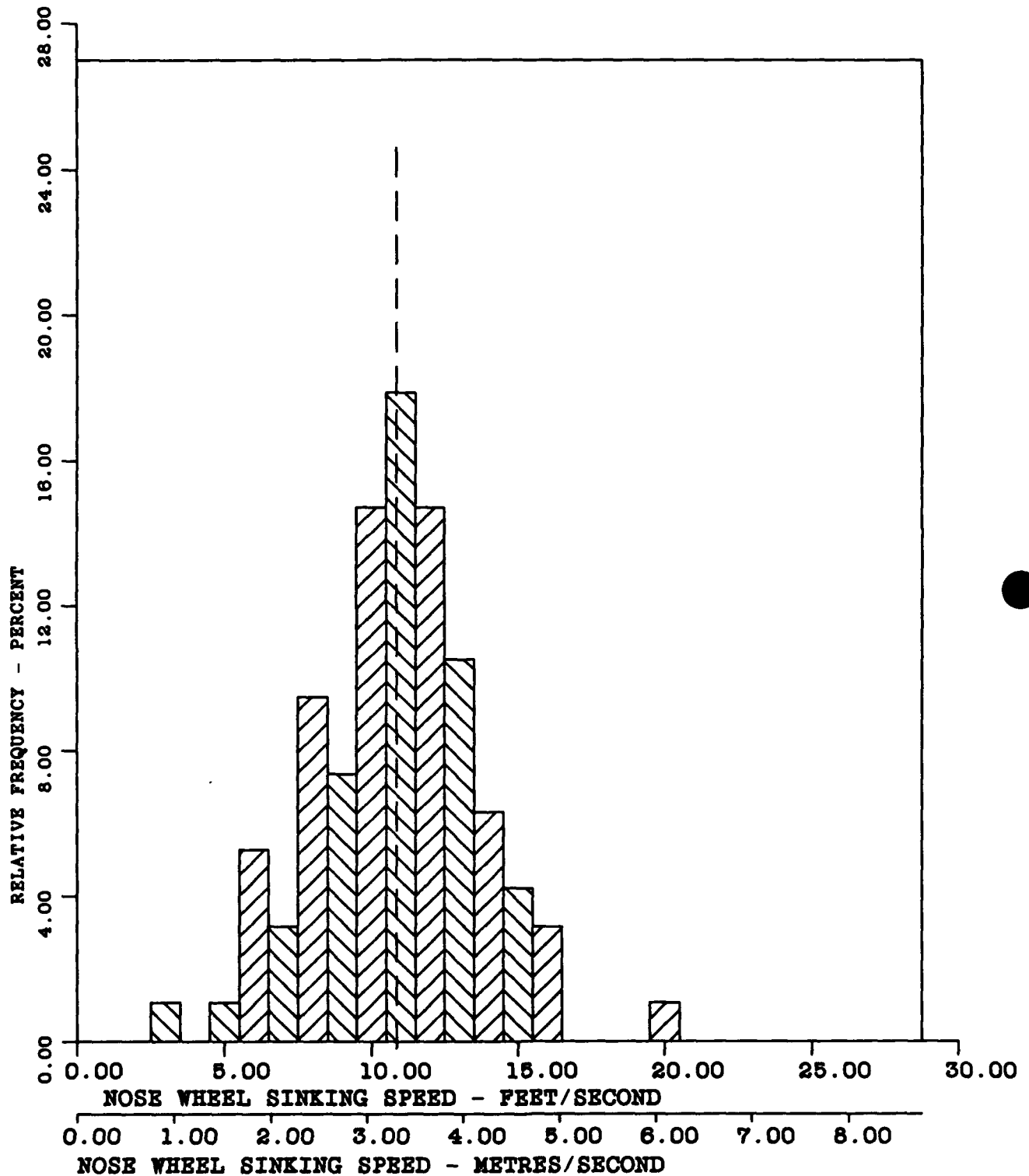


FIGURE C-5 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-68)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -10.85 FEET/SEC (3.30 METRES/SEC)

A3--.05

S-2.74 FEET/SEC (.83 METRES/SEC)

A4-3.74

CURVE FITTED - NORMAL

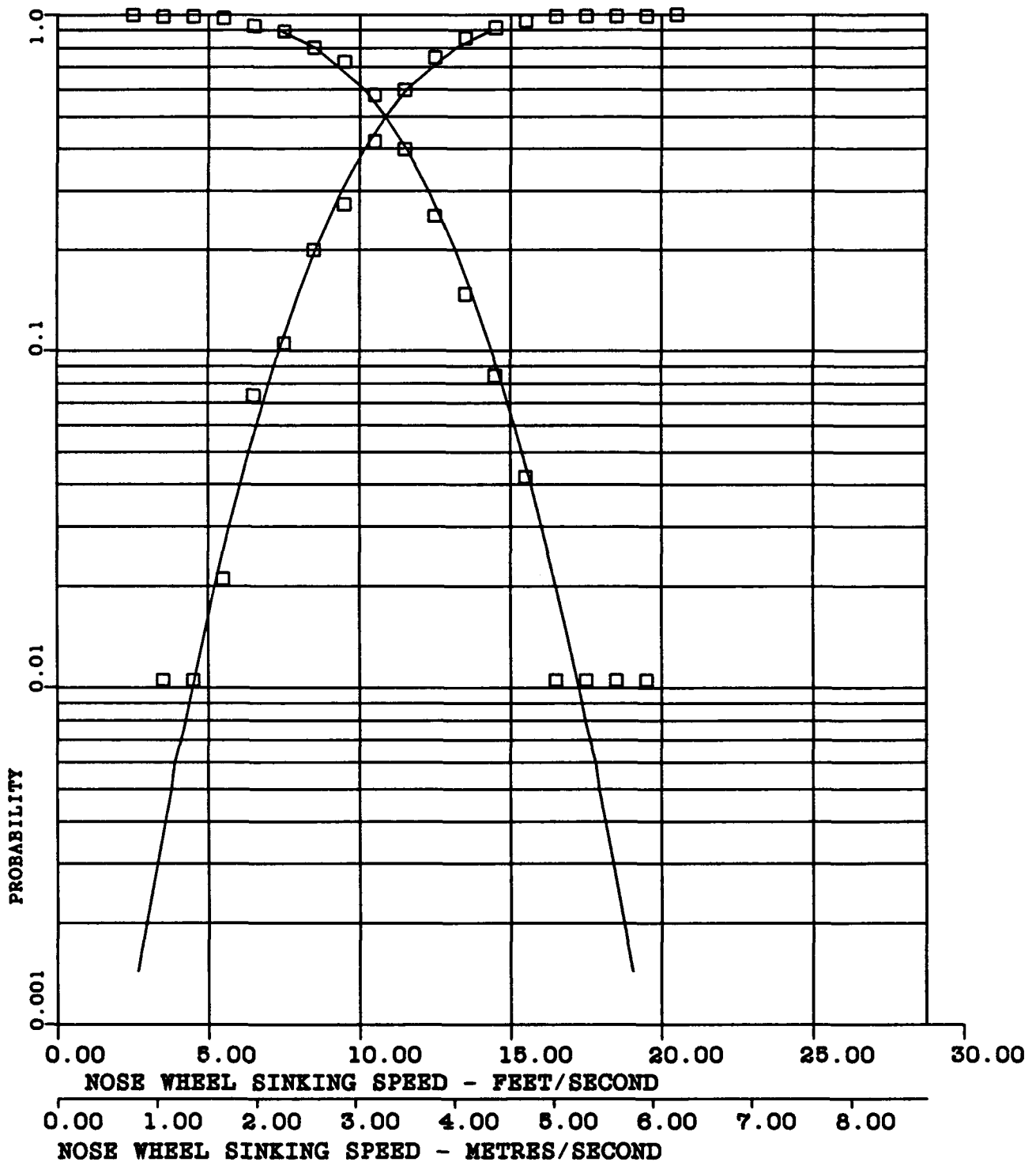


FIGURE C-6 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -12.11 FEET/SEC (3.69 METRES/SEC)

A3--.10

S-2.92 FEET/SEC (.89 METRES/SEC)

A4-3.21

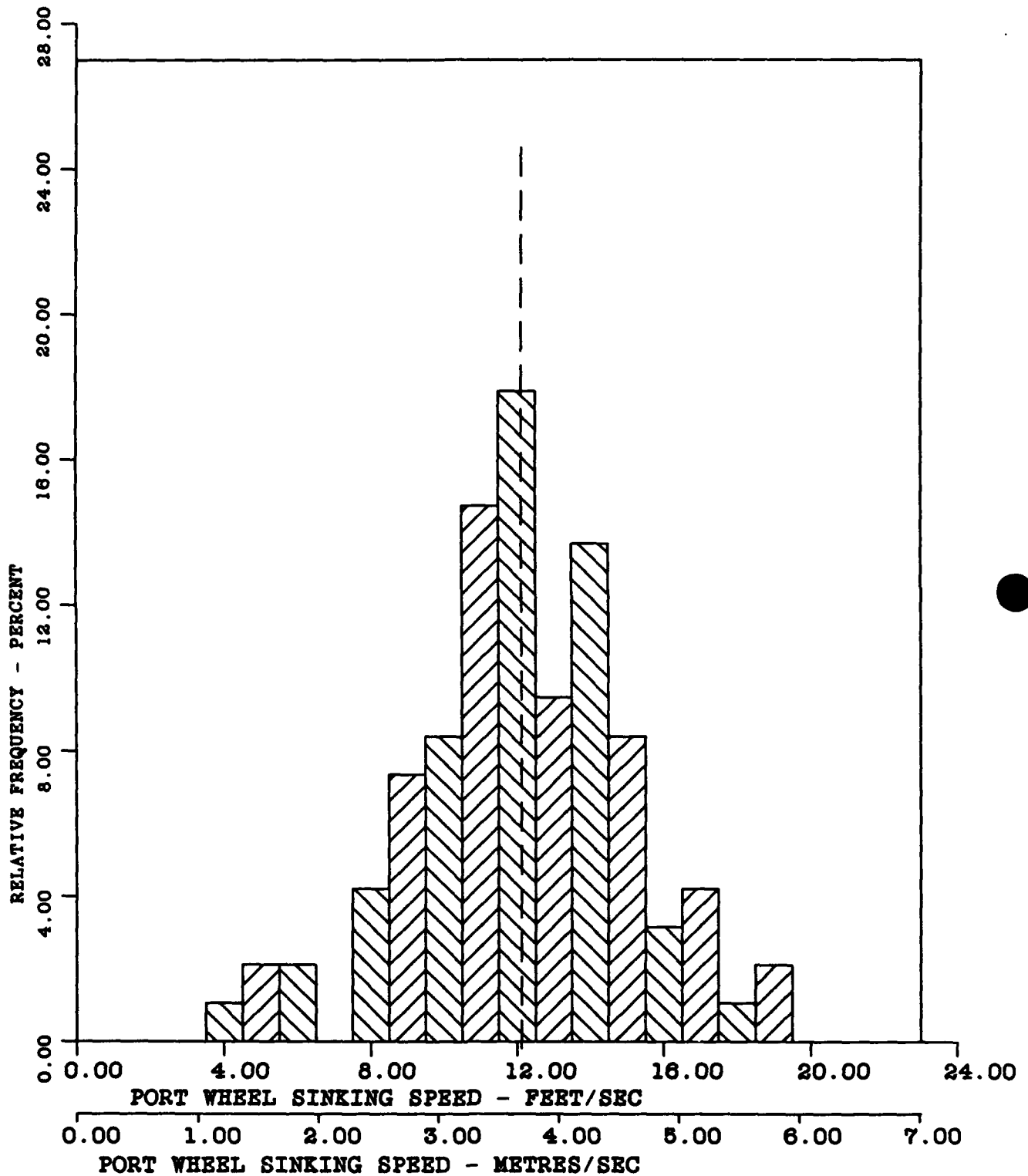


FIGURE C-7 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -12.11 FEET/SEC (3.69 METRES/SEC)

A3--.10

S-2.92 FEET/SEC (.89 METRES/SEC)

A4-3.21

CURVE FITTED - NORMAL

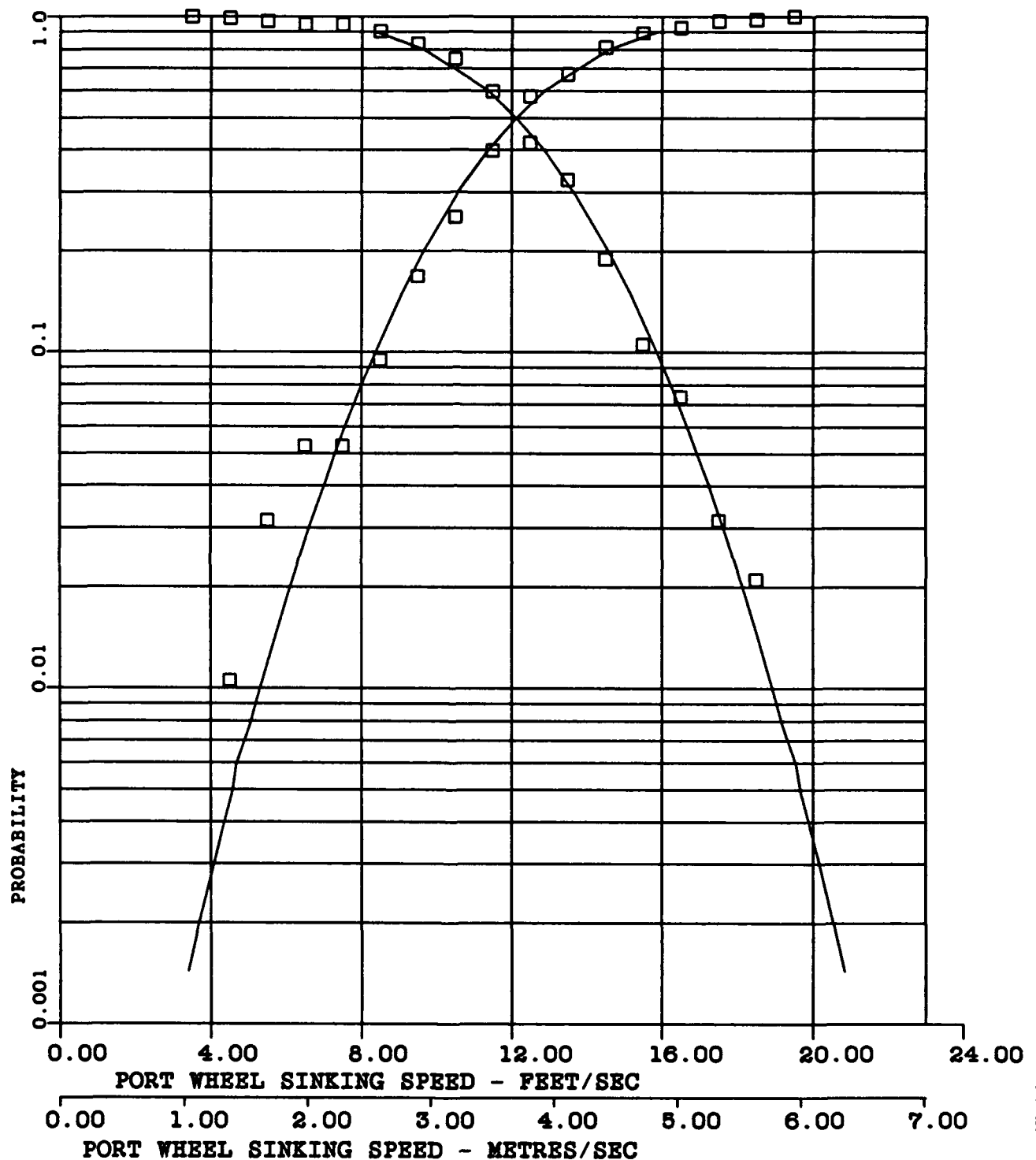


FIGURE C-8 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -11.62 FEET/SEC (3.54 METRES/SEC)

A3--.27

S-2.92 FEET/SEC (.89 METRES/SEC)

A4-2.91

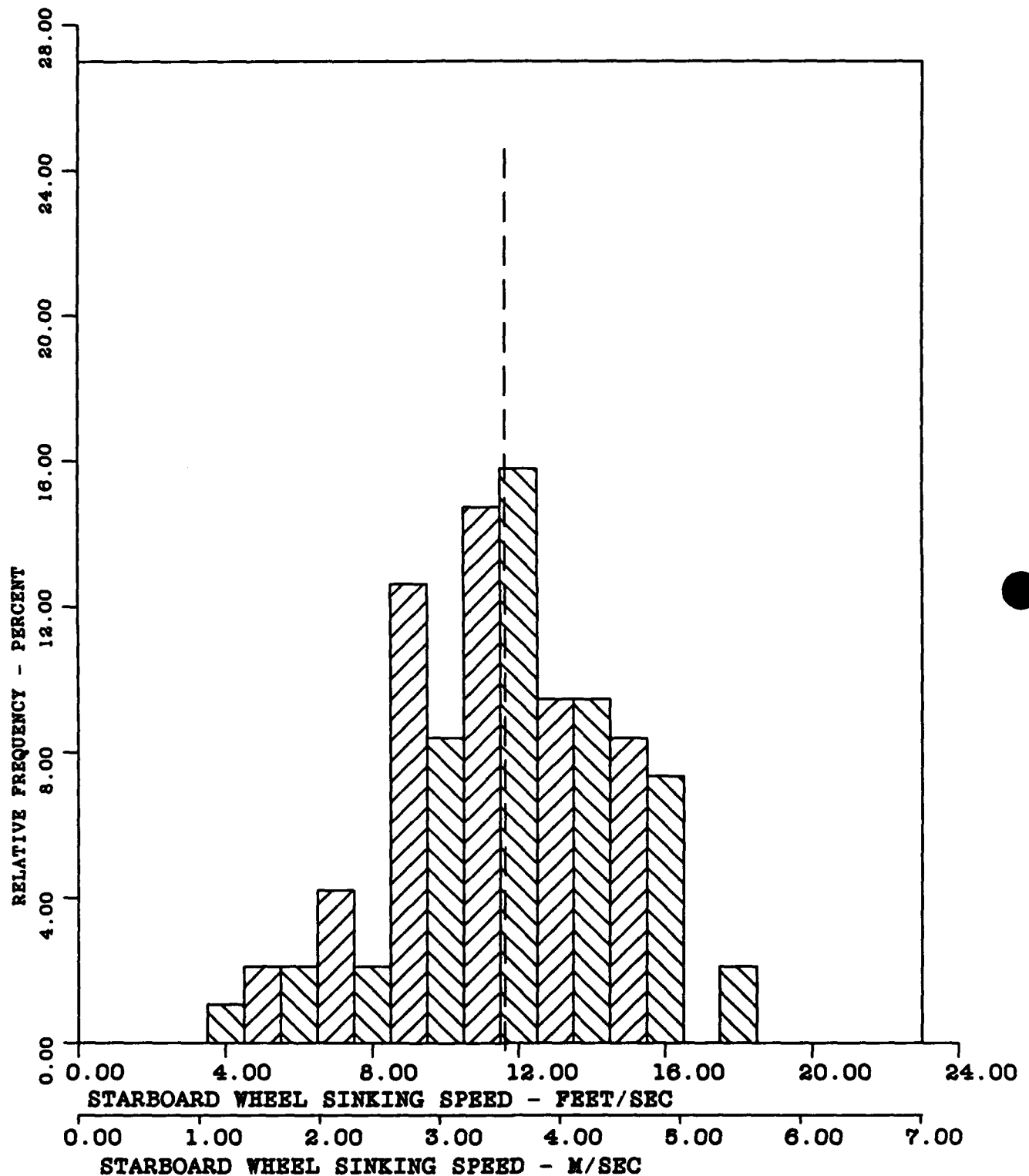


FIGURE C-9 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -11.62 FEET/SEC (3.54 METRES/SEC)

A3--.27

S-2.92 FEET/SEC (.89 METRES/SEC)

A4-2.91

CURVE FITTED - NORMAL

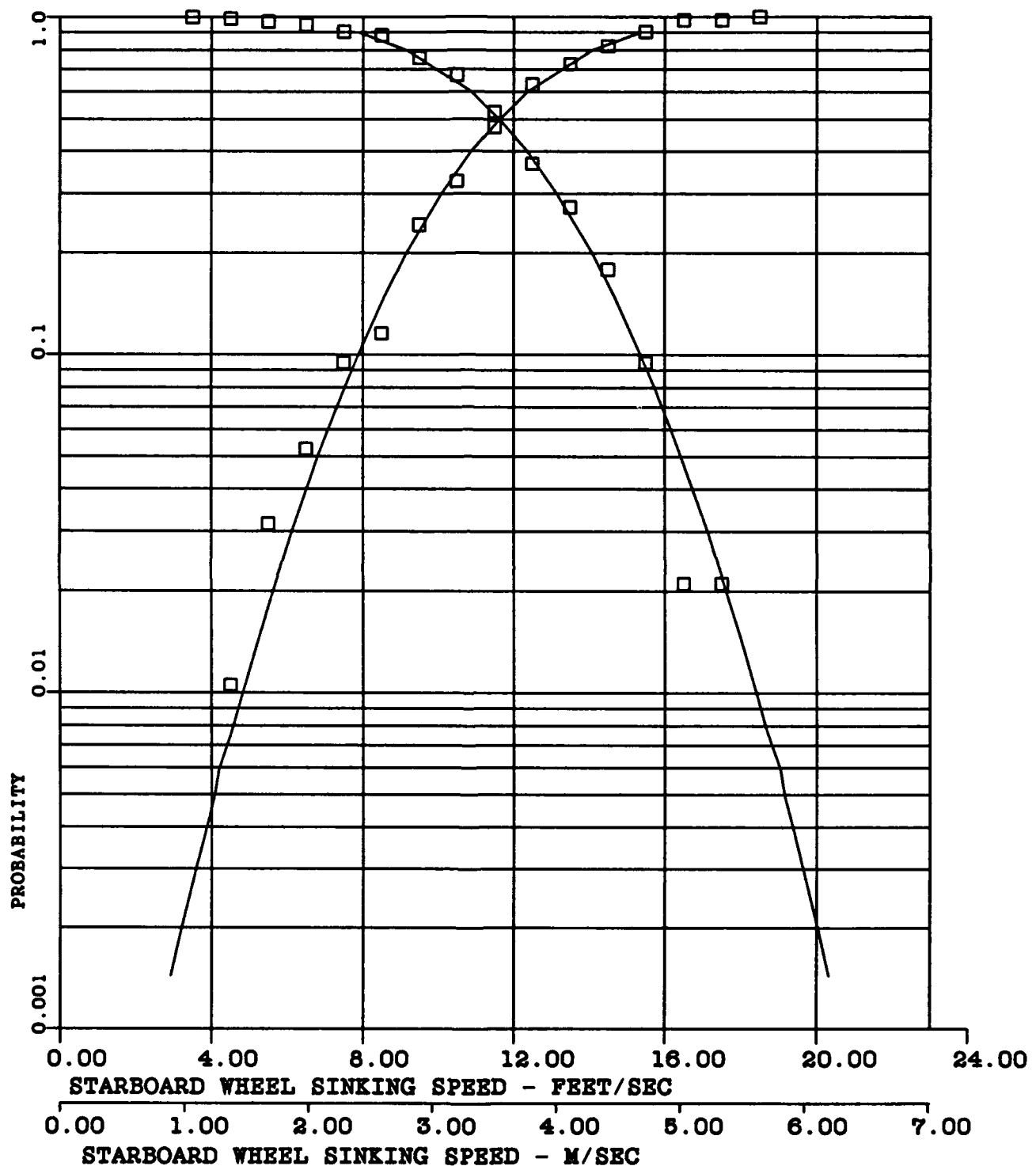


FIGURE C-10 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

PRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -11.85 FEET/SEC (3.61 METRES/SEC)

A3--.44

S-2.76 FEET/SEC (.84 METRES/SEC)

A4-3.38

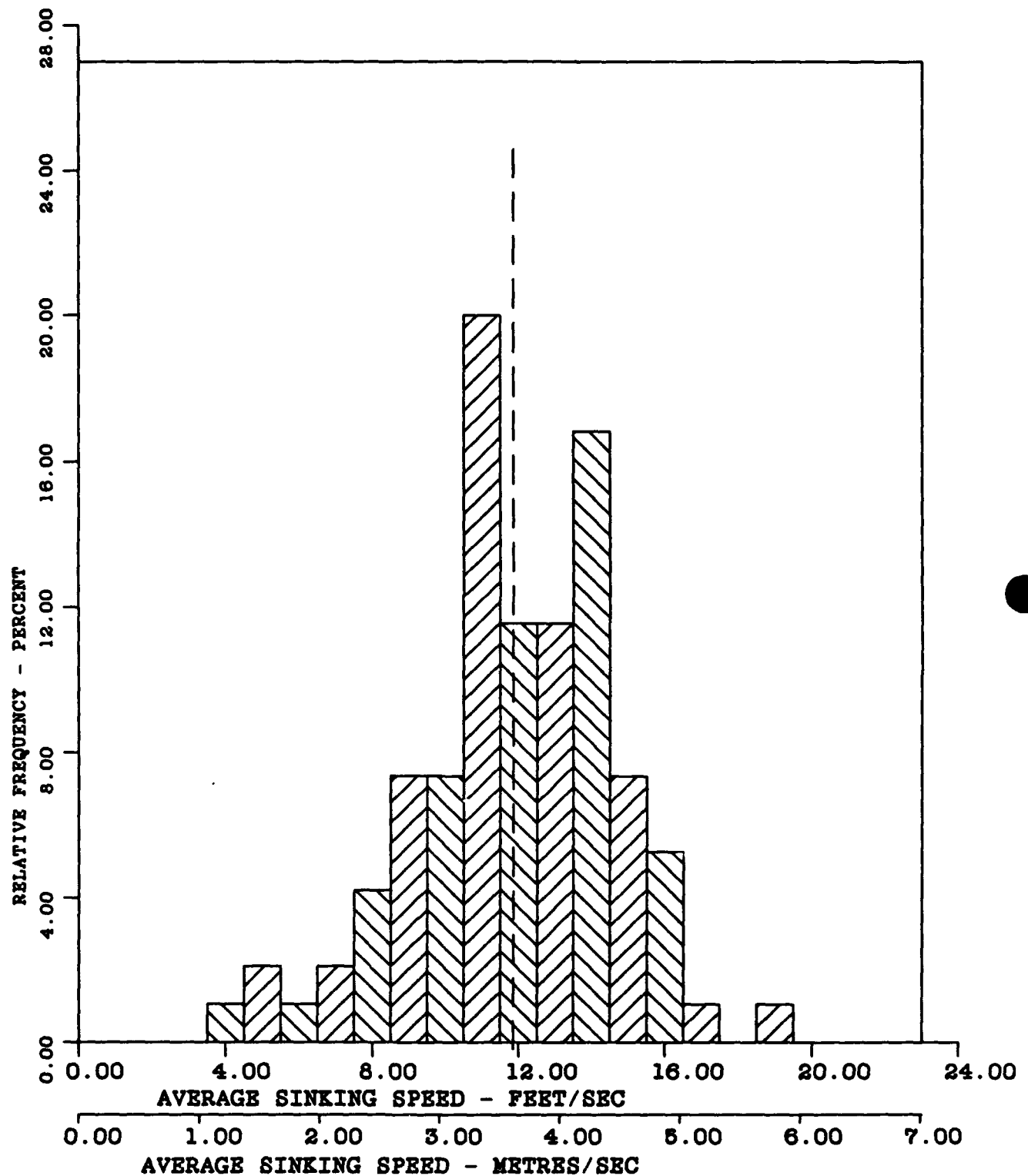


FIGURE C-11 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -11.85 FEET/SEC (3.61 METRES/SEC)

A3--.44

S-2.76 FEET/SEC (.84 METRES/SEC)

A4-3.38

CURVE FITTED - NORMAL

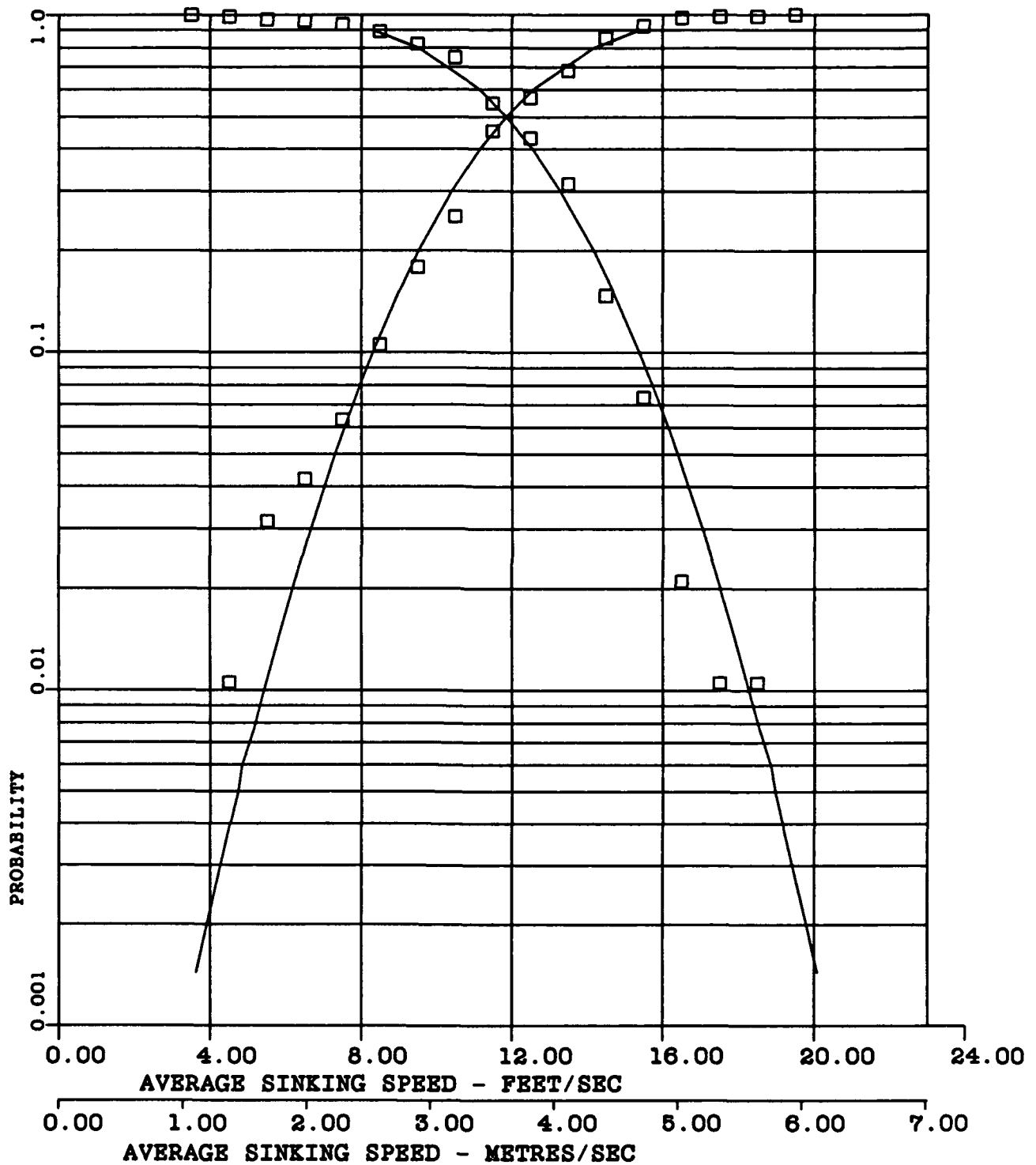


FIGURE C-12 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=7

 $\bar{X}$ =12.21 FEET/SEC (3.72 METRES/SEC)

A3=.57

S=1.99 FEET/SEC (.60 METRES/SEC)

A4=1.89

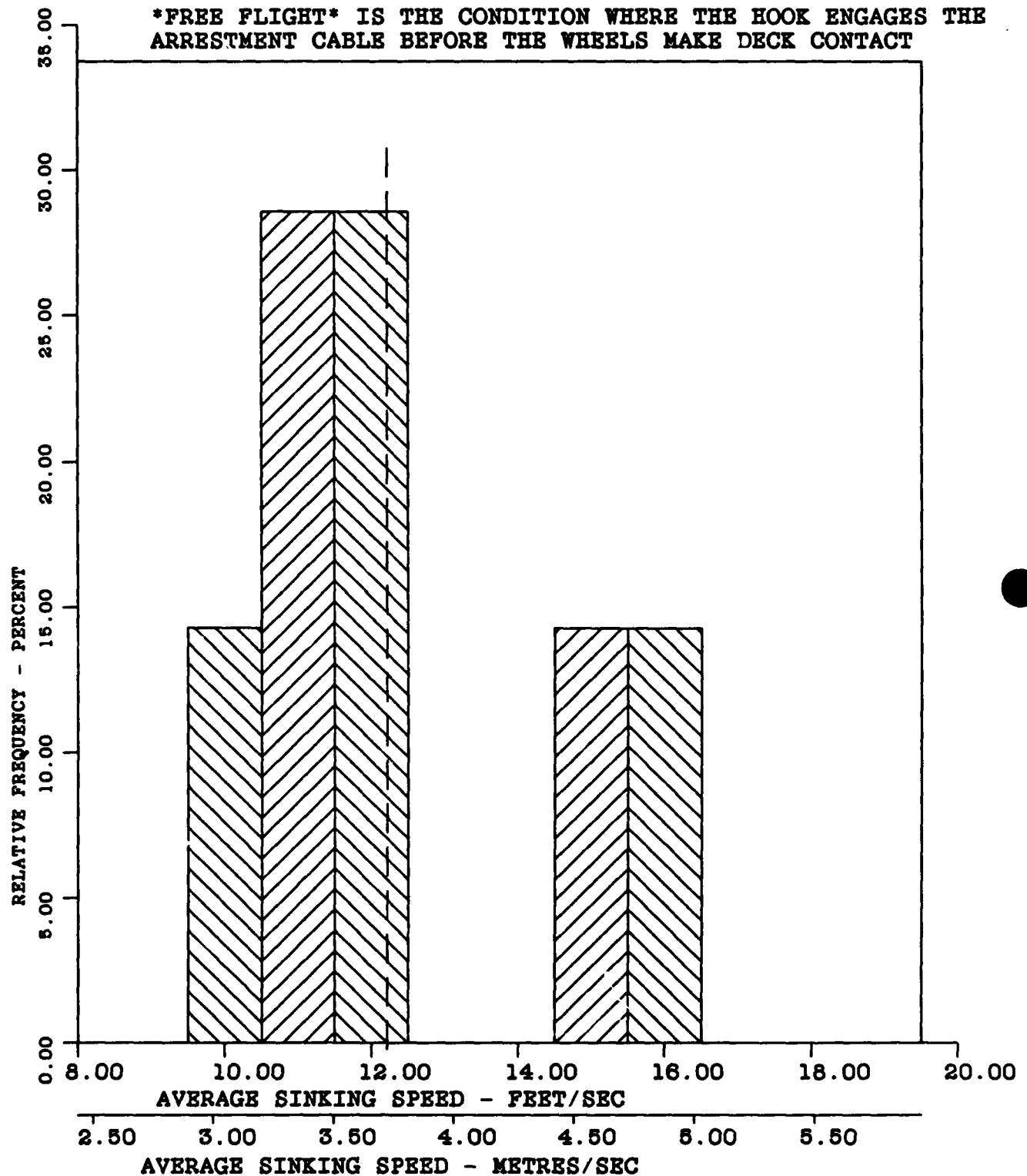


FIGURE C-13 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=7

 $\bar{X}$ =12.21 FEET/SEC (3.72 METRES/SEC)

A3=.57

S=1.99 FEET/SEC (.60 METRES/SEC)

A4=1.89

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

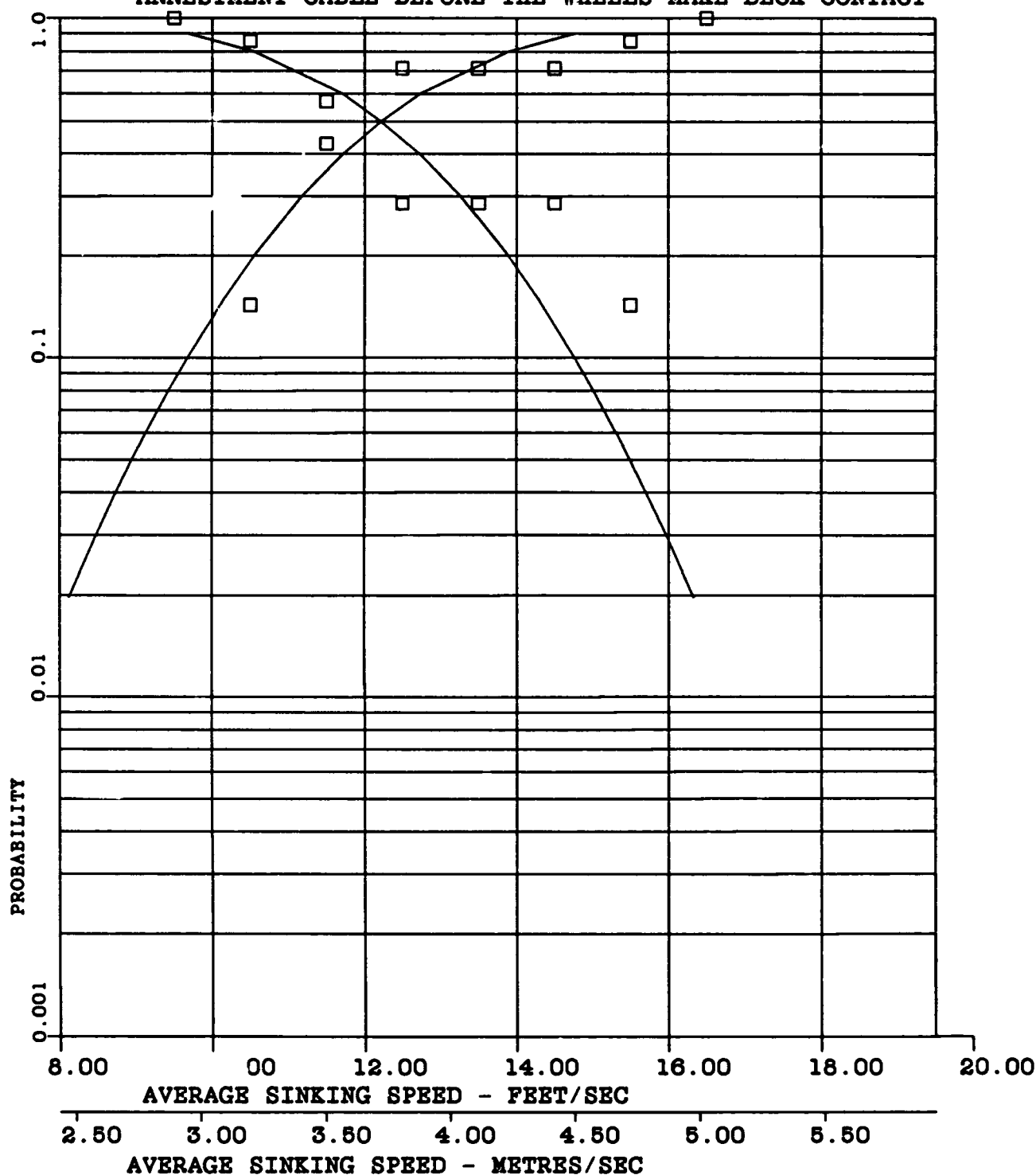


FIGURE C-14 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -1.05

S-.11

A3-.96

A4-4.99

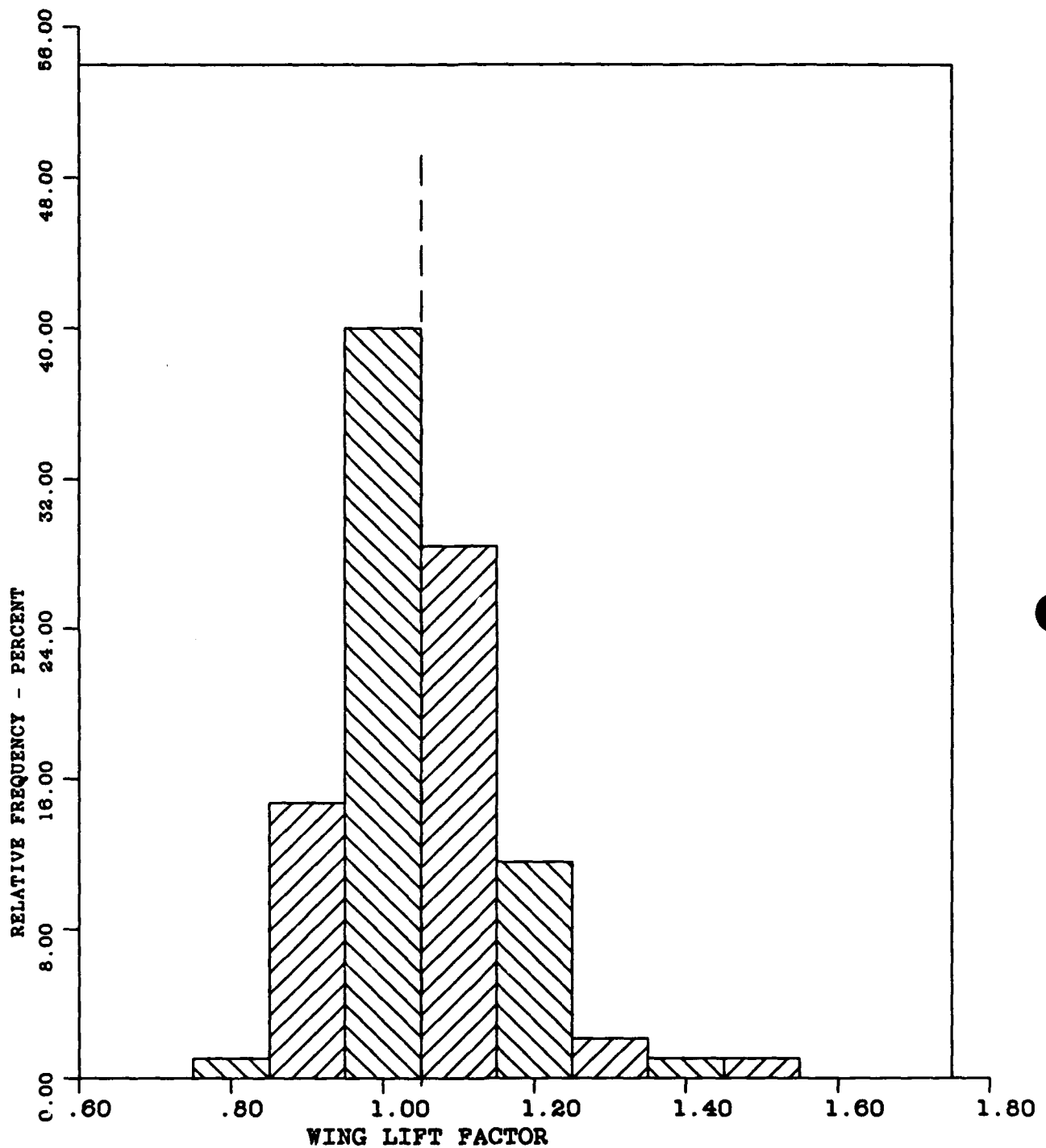


FIGURE C-15 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -1.05

A3-.96

S=.11

A4-4.99

CURVE FITTED - PEARSON TYPE III

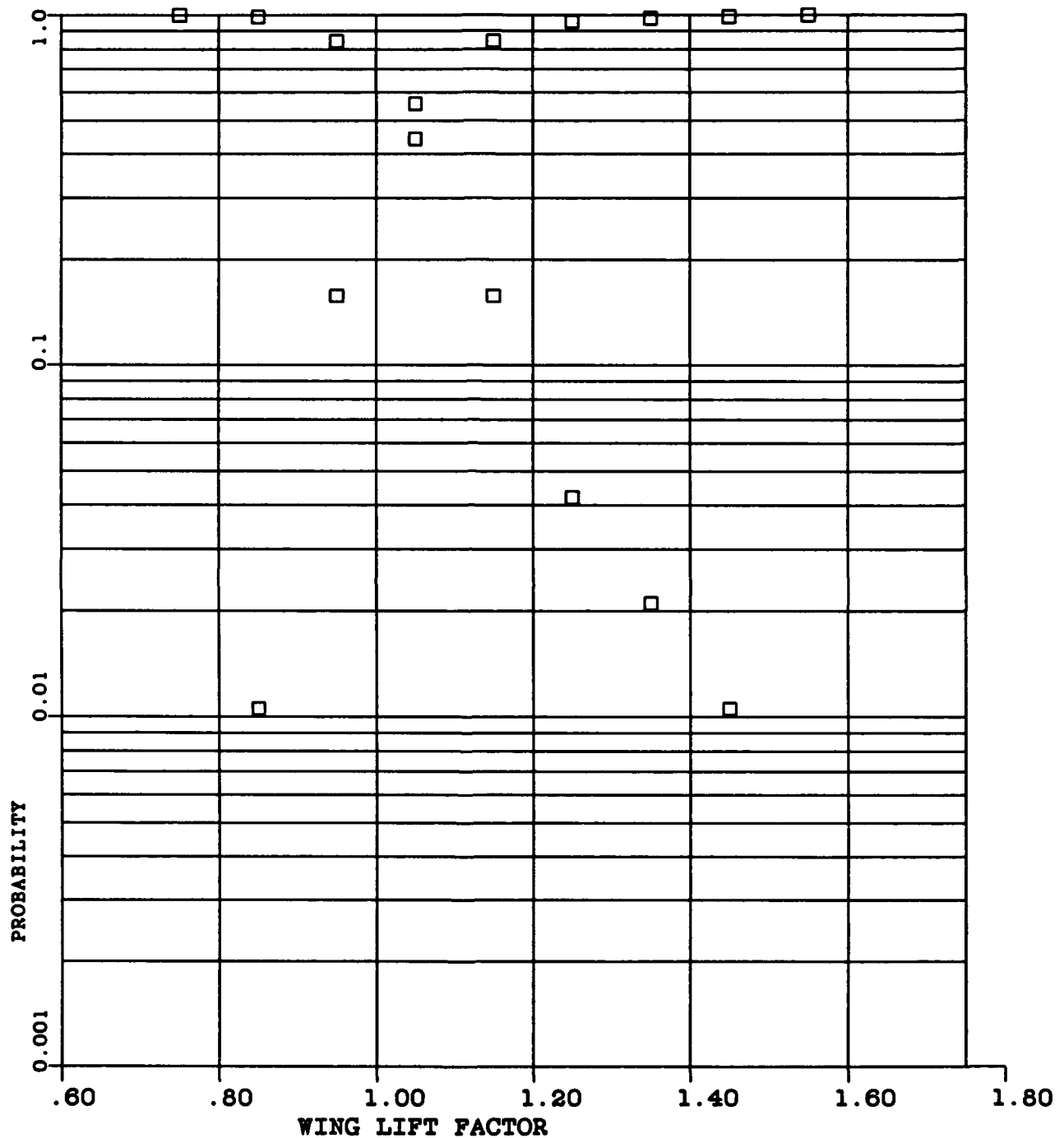


FIGURE C-16 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -1.04

A3-.28

S-.04

A4-1.08

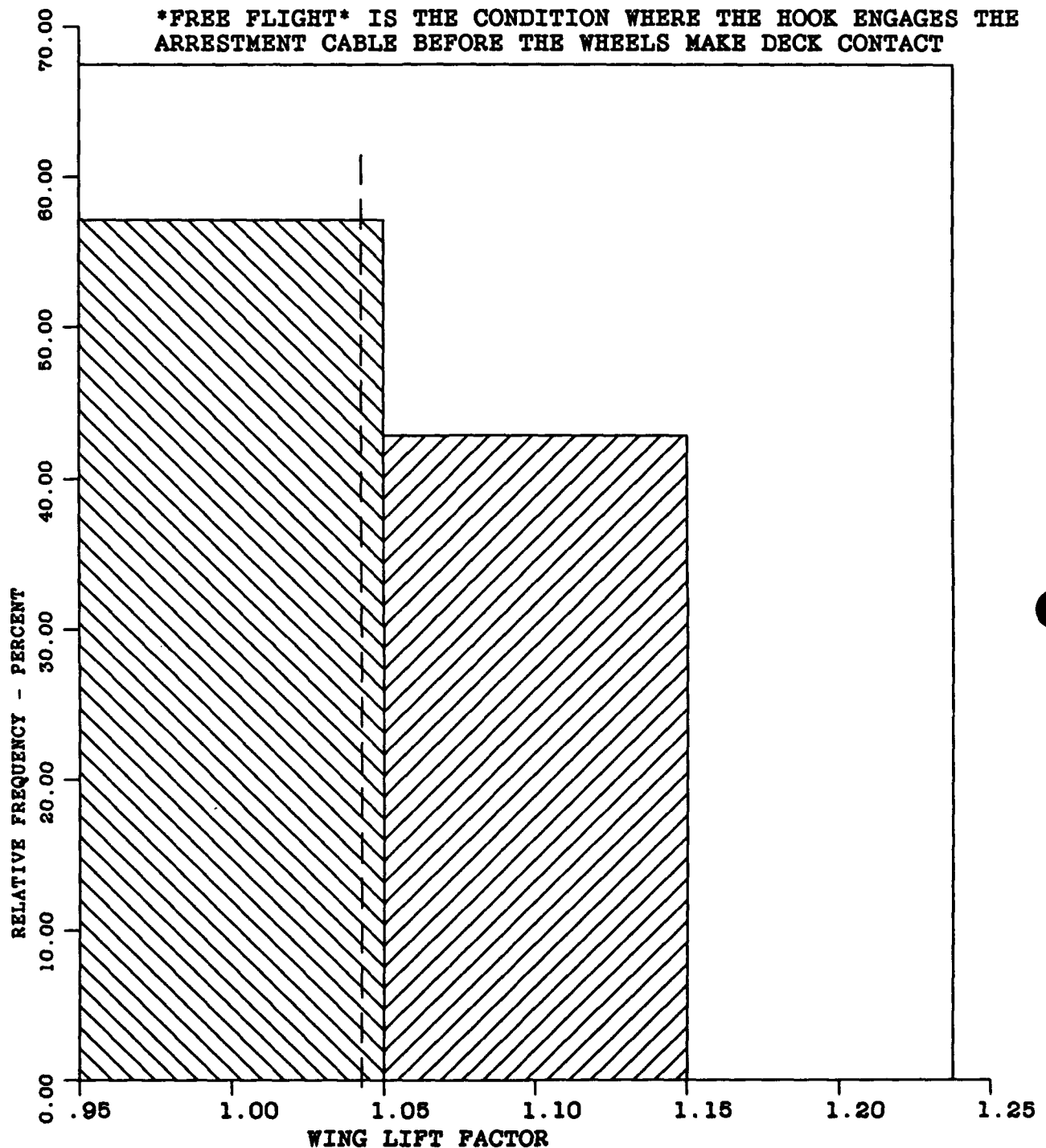


FIGURE C-17 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -1.04

A3-.28

S-.04

A4-1.08

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

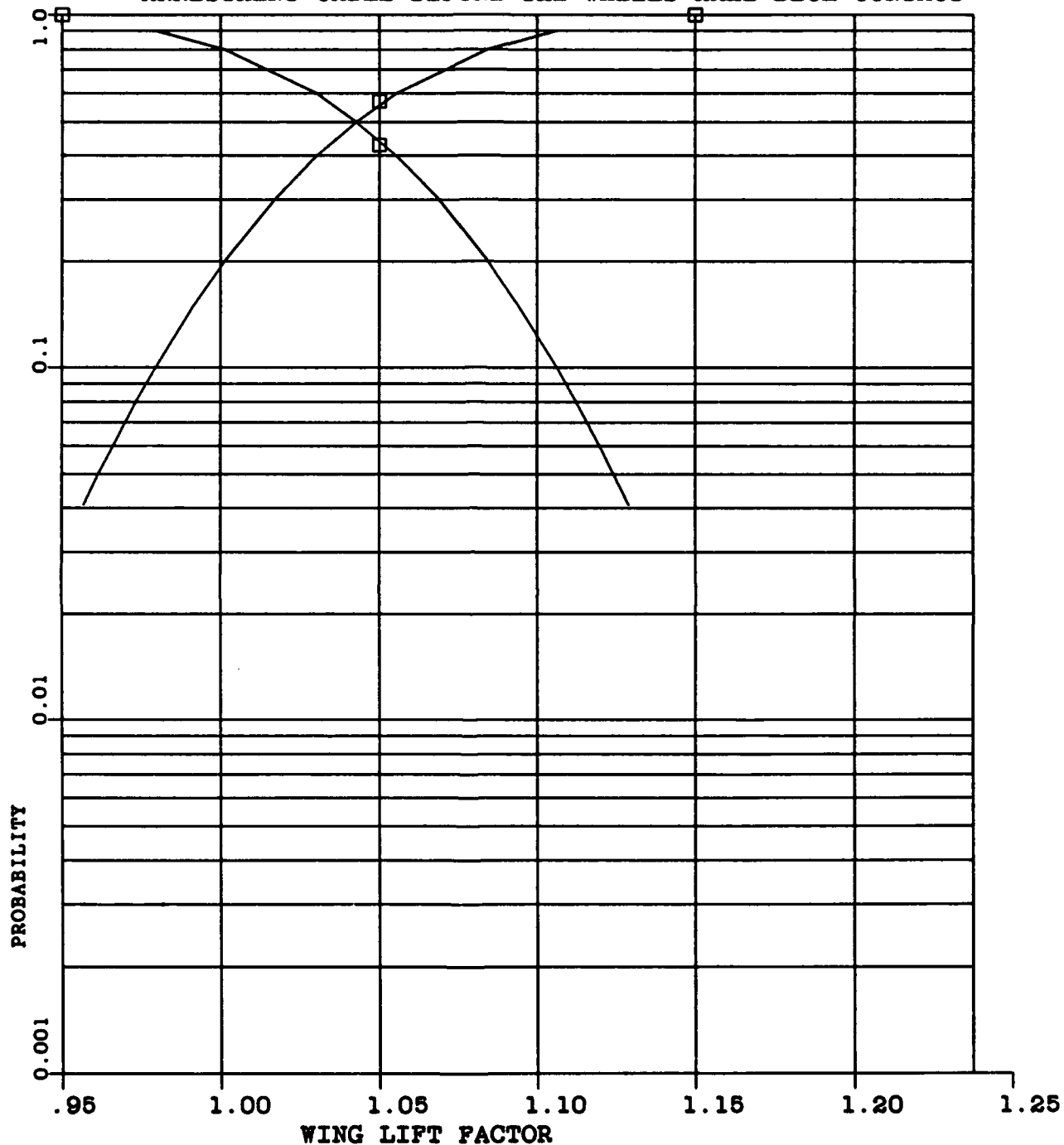


FIGURE C-18 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -7.53 DEGREES (.131 RADIANS)

A3-.67

S-1.33 DEGREES (.023 RADIANS)

A4-5.89

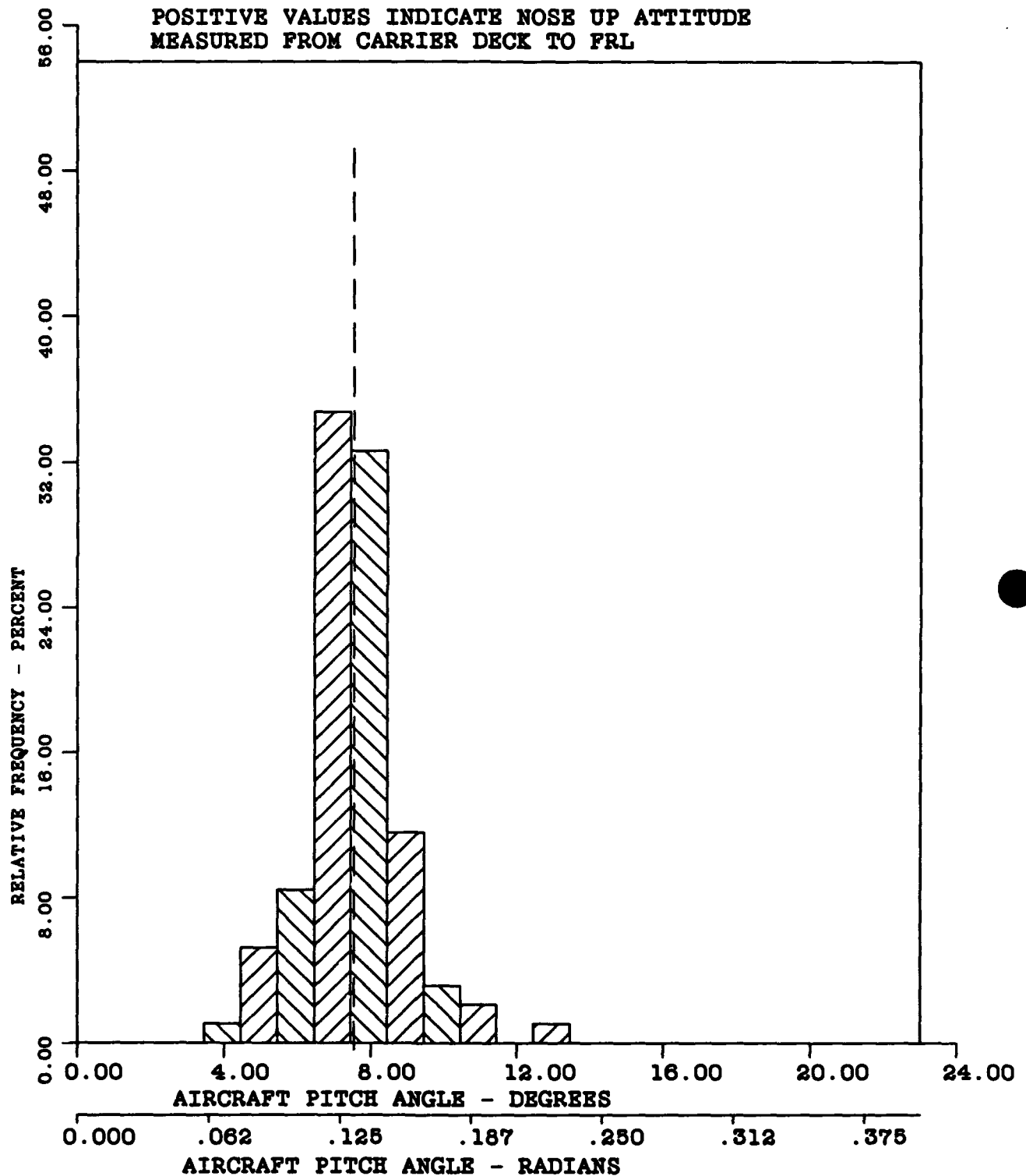


FIGURE C-19 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.60 DEGREES (.061 RADIANS)

N-96

 $\bar{X}$ =7.53 DEGREES (.131 RADIANS)

A3=.67

S=1.33 DEGREES (.023 RADIANS)

A4=5.89

CURVE FITTED - PEARSON TYPE III

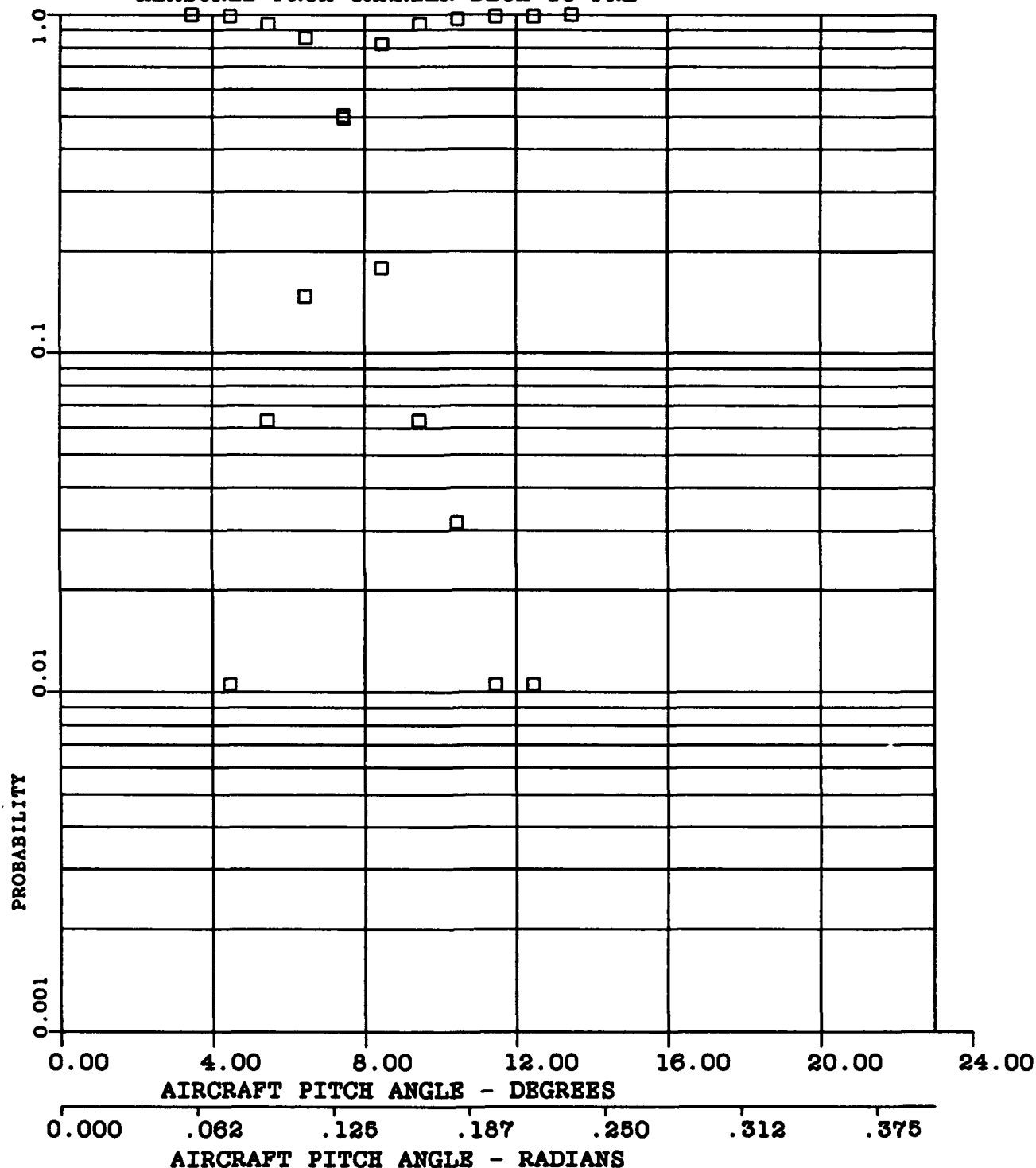
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE C-20 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -8.37 DEGREES (.146 RADIANS)

A3--.06

S-1.18 DEGREES (.020 RADIANS)

A4-2.04

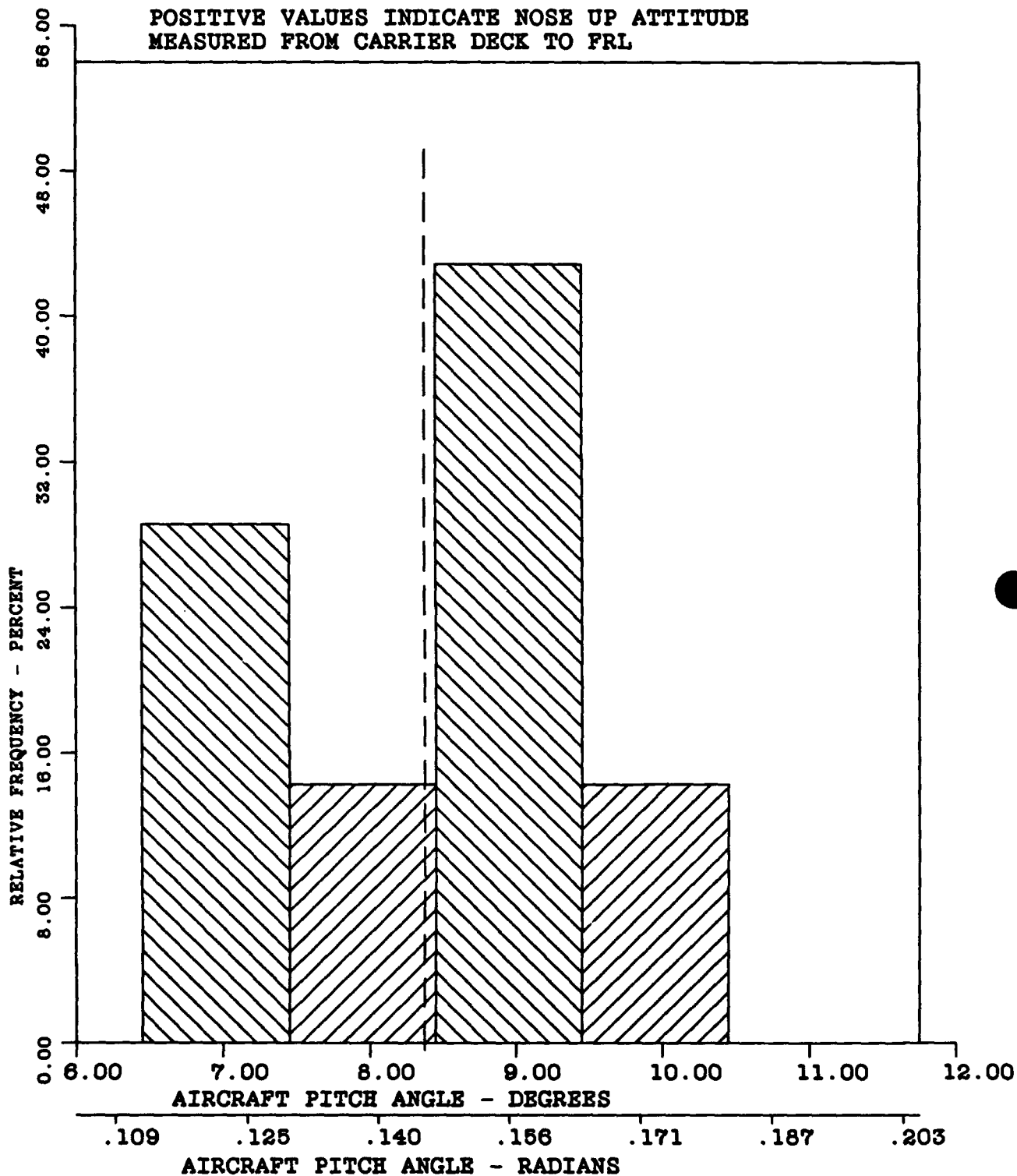


FIGURE C-21 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -8.37 DEGREES (.146 RADIANS)

A3--.06

S-1.18 DEGREES (.020 RADIANS)

A4-2.04

CURVE FITTED - NORMAL

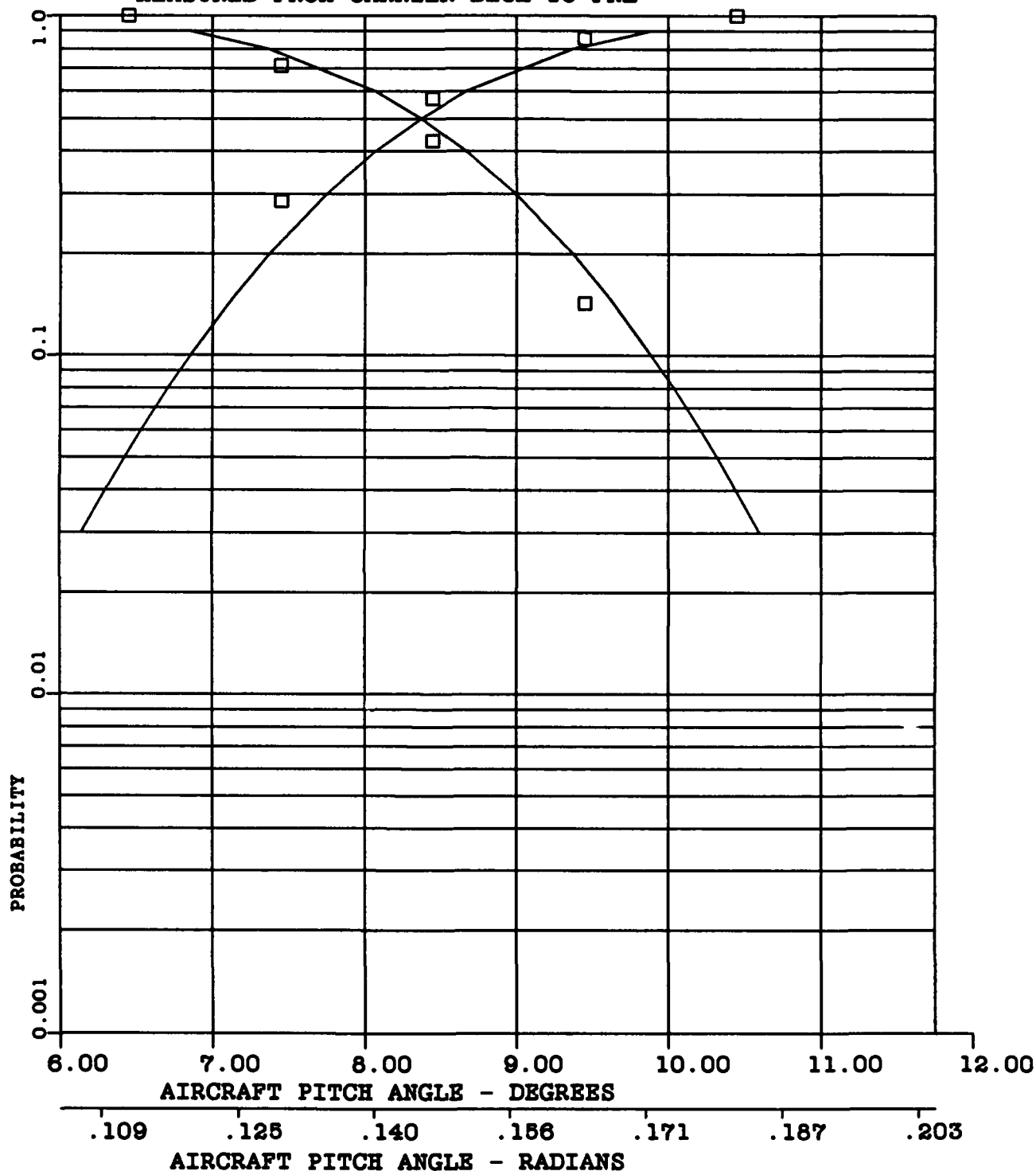
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE C-22 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$  = -.29 DEGREES (-.005 RADIANS)

A3 = -.02

S = 2.70 DEGREES (.047 RADIANS)

A4 = 3.78

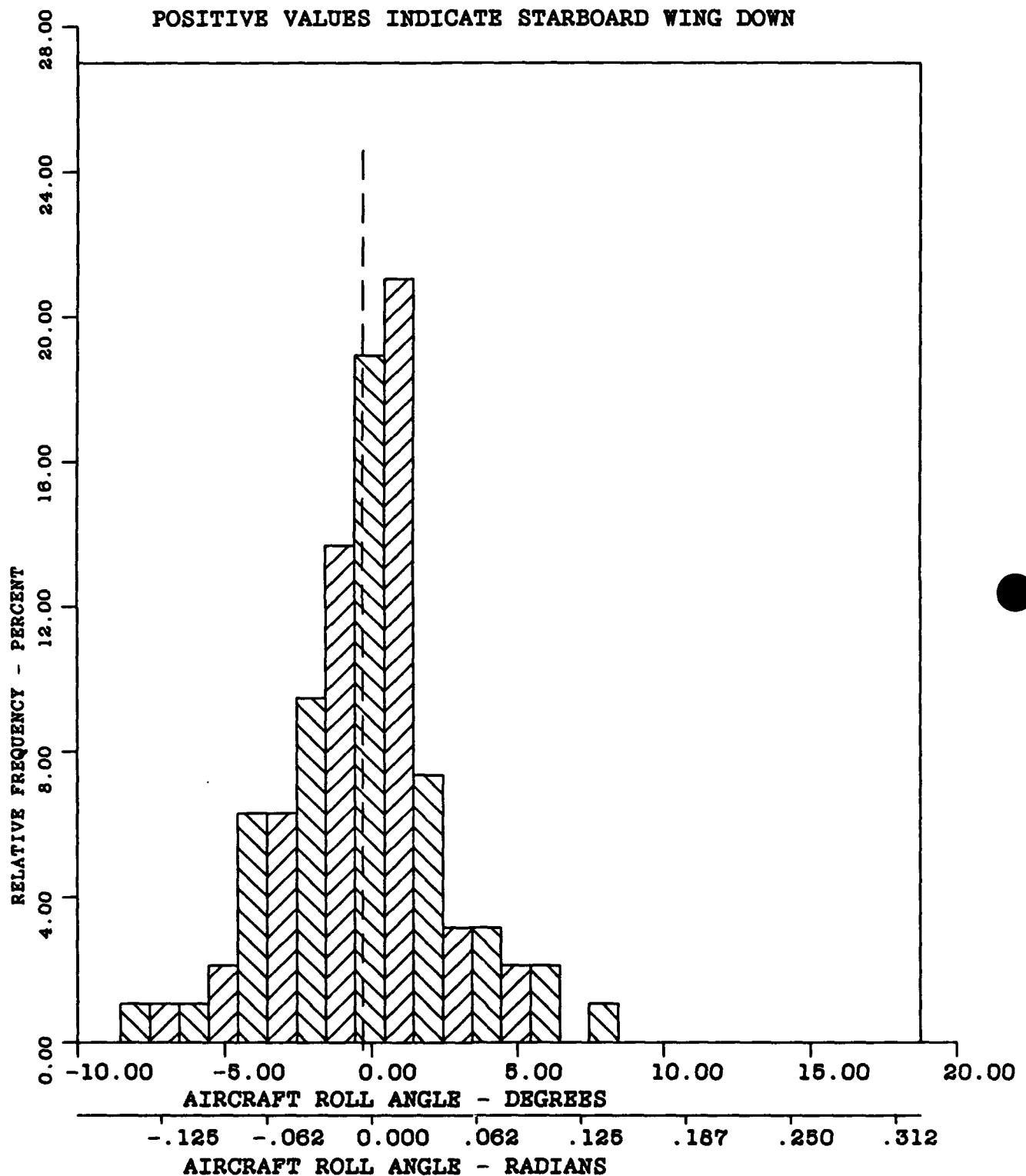


FIGURE C-23 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$  = -.29 DEGREES (-.005 RADIANS)

A3 = -.02

S = 2.70 DEGREES (.047 RADIANS)

A4 = 3.78

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

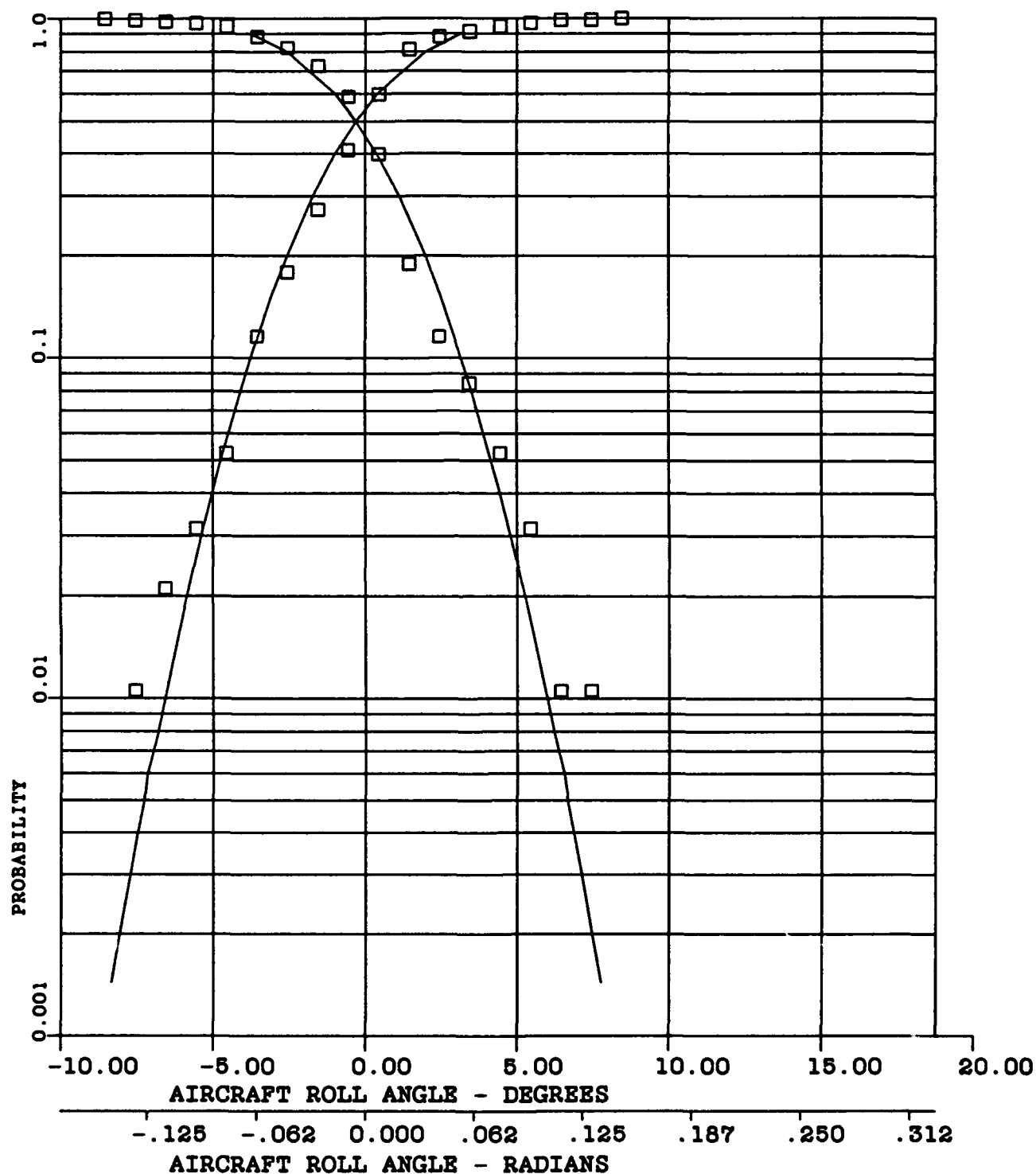


FIGURE C-24 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -.22 DEGREES (.003 RADIANS)

A3--.01

S-1.12 DEGREES (.019 RADIANS)

A4-1.25

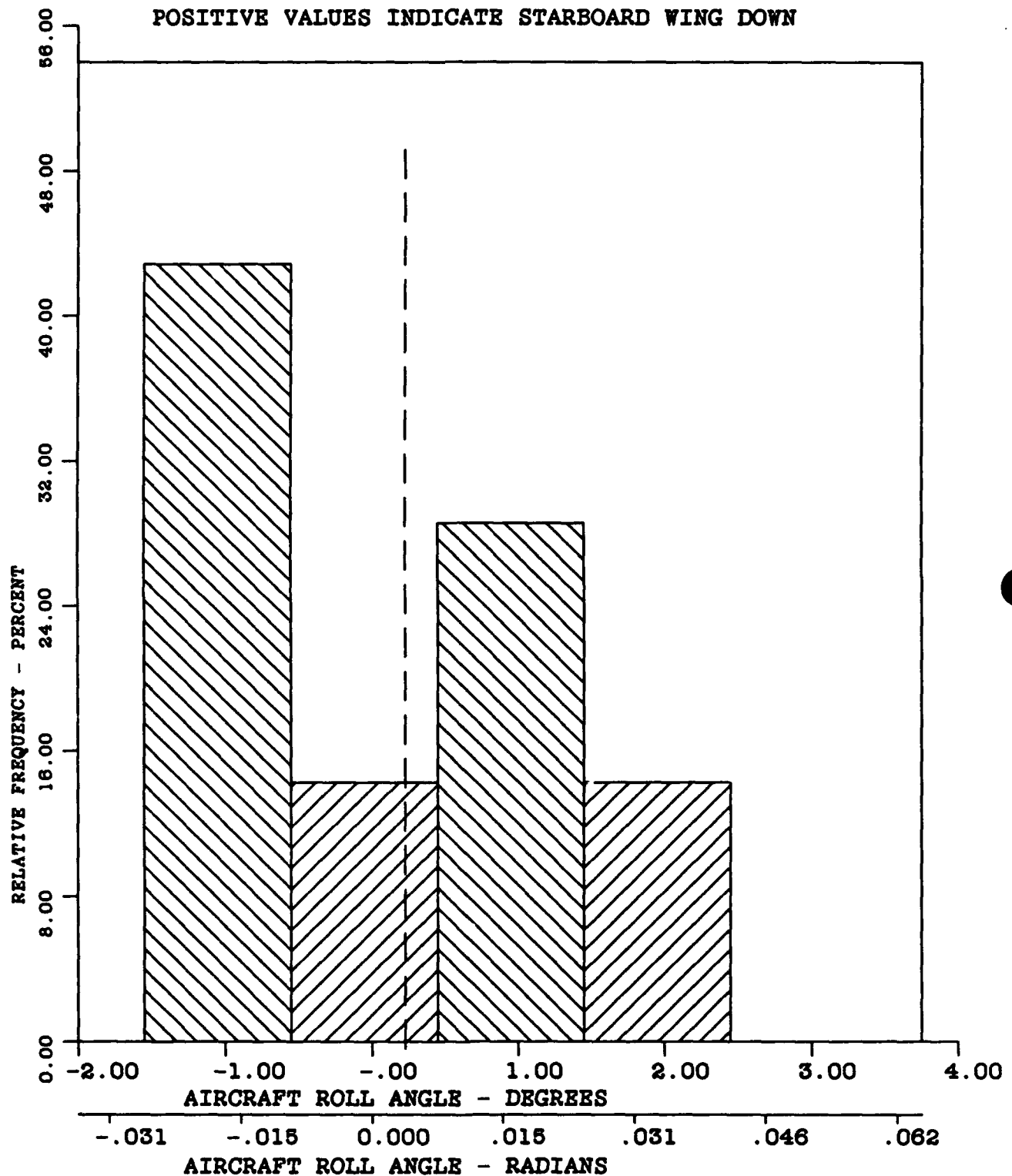


FIGURE C-25 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -.22 DEGREES (.003 RADIANS)

A3--.01

S-1.12 DEGREES (.019 RADIANS)

A4-1.25

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

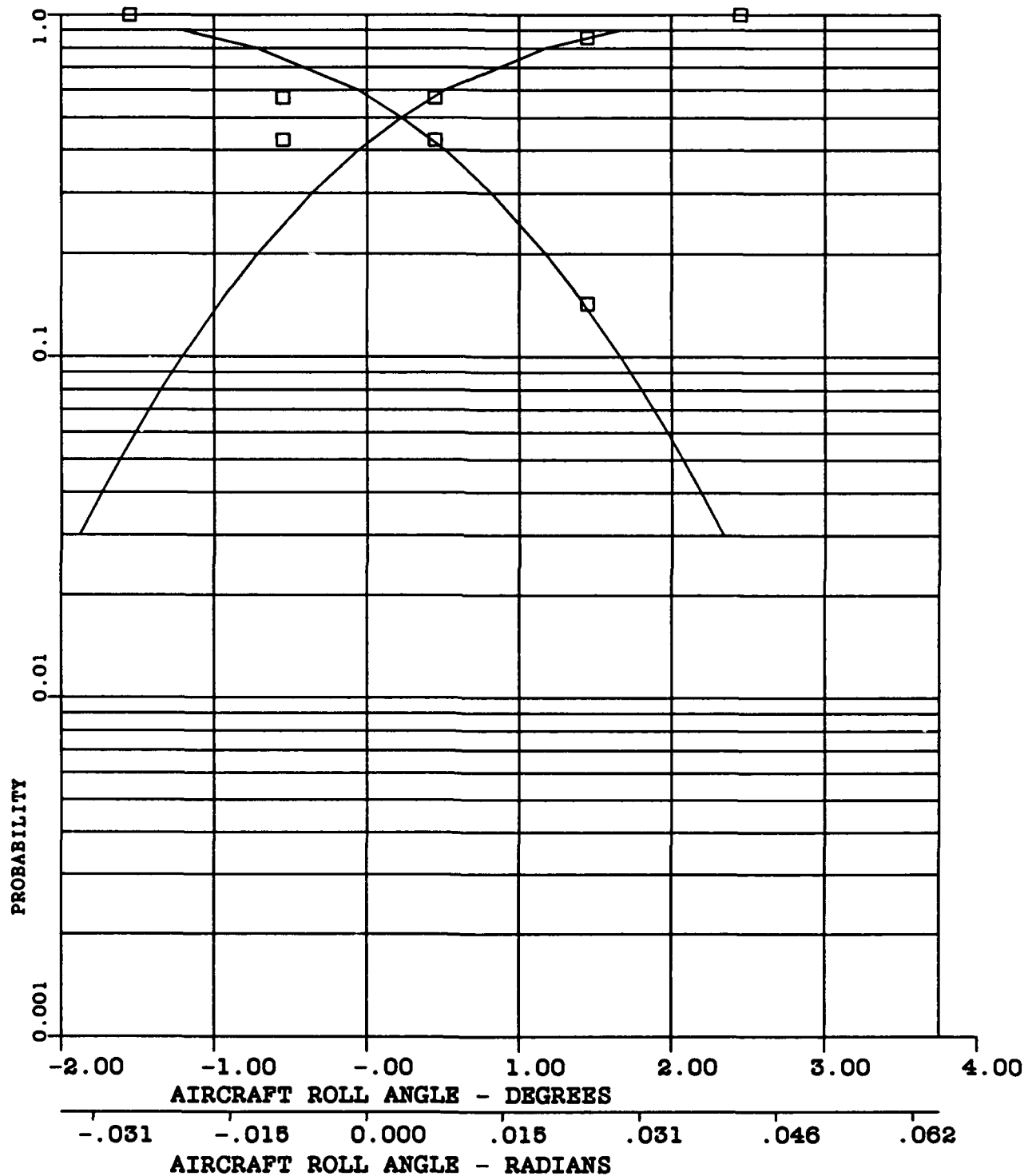


FIGURE C-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ =256.17 FEET (78.08 METRES)

A3=-.28

S=41.55 FEET (12.66 METRES)

A4=2.67

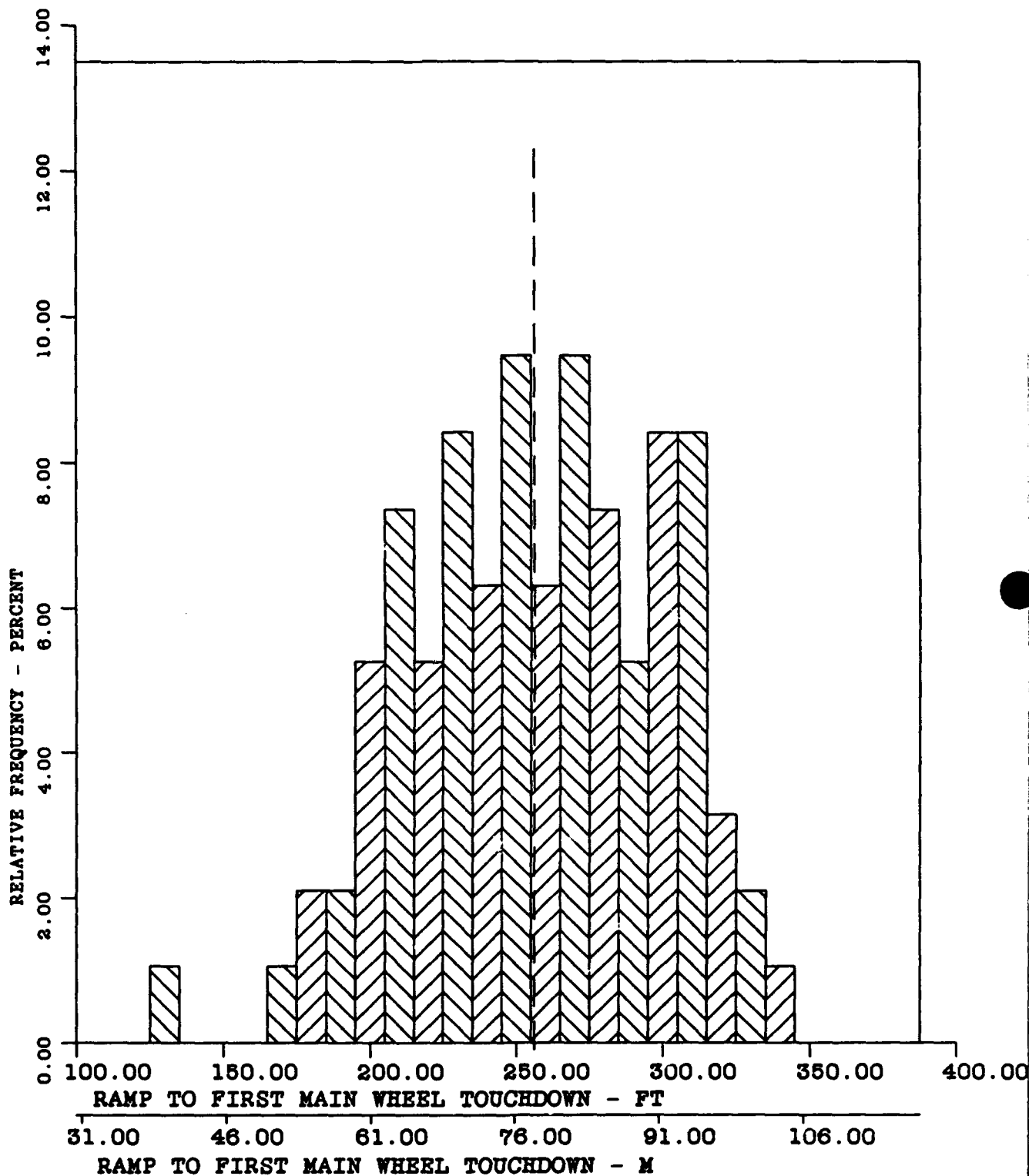


FIGURE C-27 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -256.17 FEET (78.08 METRES)

A3--.28

S-41.55 FEET (12.66 METRES)

A4-2.67

CURVE FITTED - NORMAL

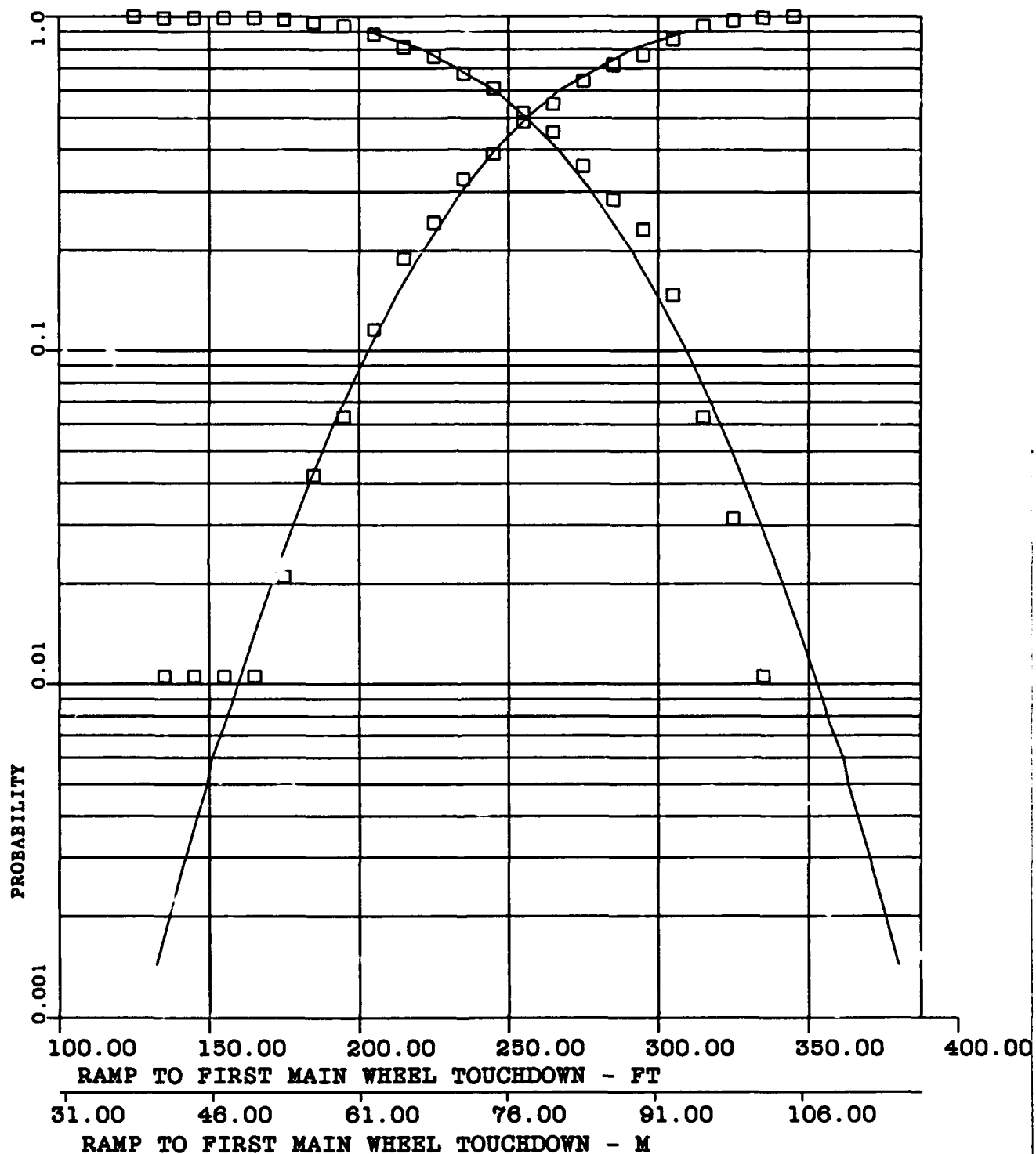


FIGURE C-28 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ --12.62 FEET (-3.84 METRES)

A3-.88

S-5.06 FEET (1.54 METRES)

A4-7.44

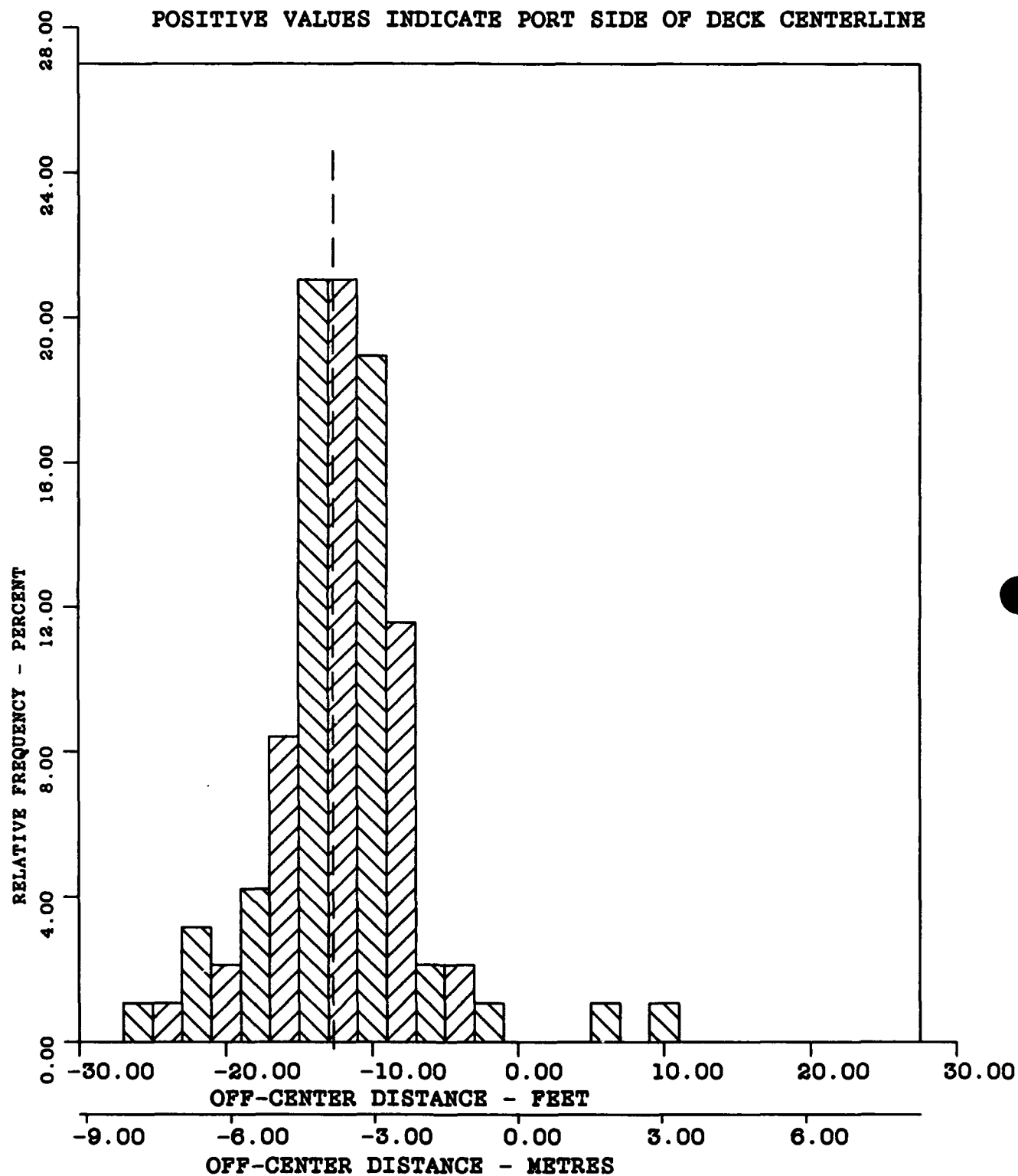


FIGURE C-29 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -12.62 FEET (-3.84 METRES)

A3-.88

S-5.06 FEET (1.54 METRES)

A4-7.44

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

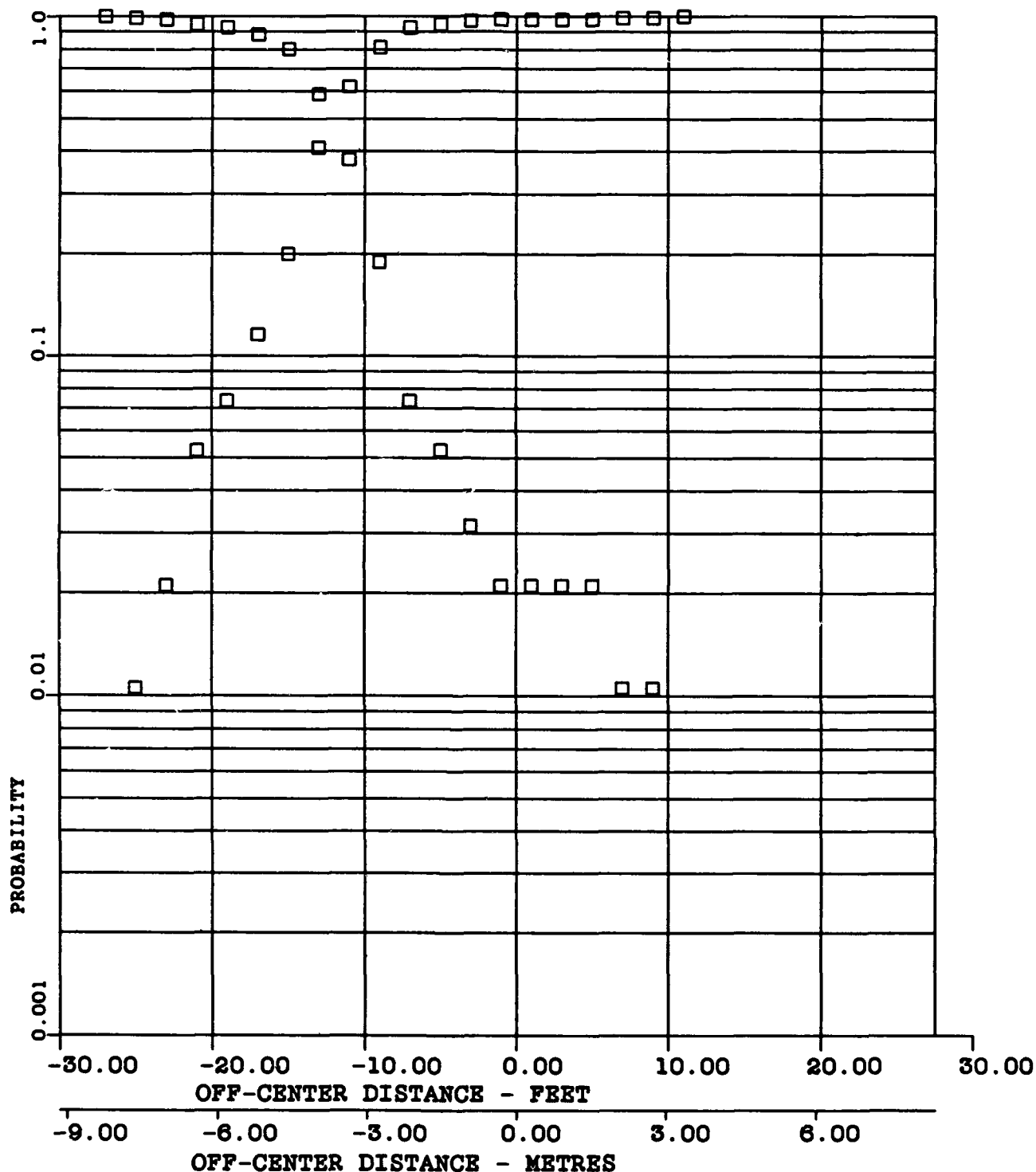


FIGURE C-30 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-69

 $\bar{X}$ -2.81

A3--.04

S-.93

A4-1.81

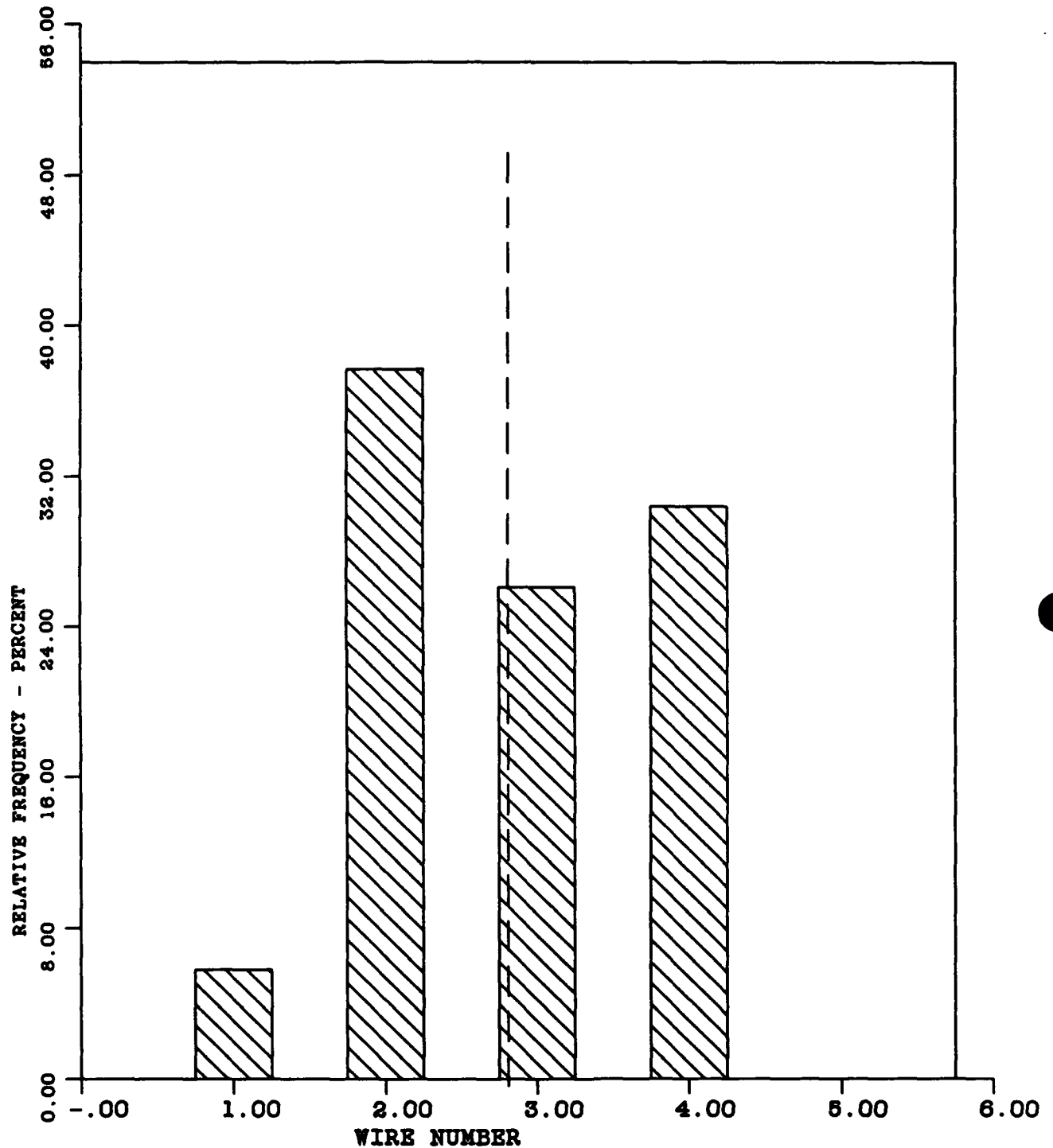


FIGURE C-31 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -3.36 DEGREES (.058 RADIANS)

A3--.56

S-.88 DEGREES (.015 RADIANS)

A4-3.49

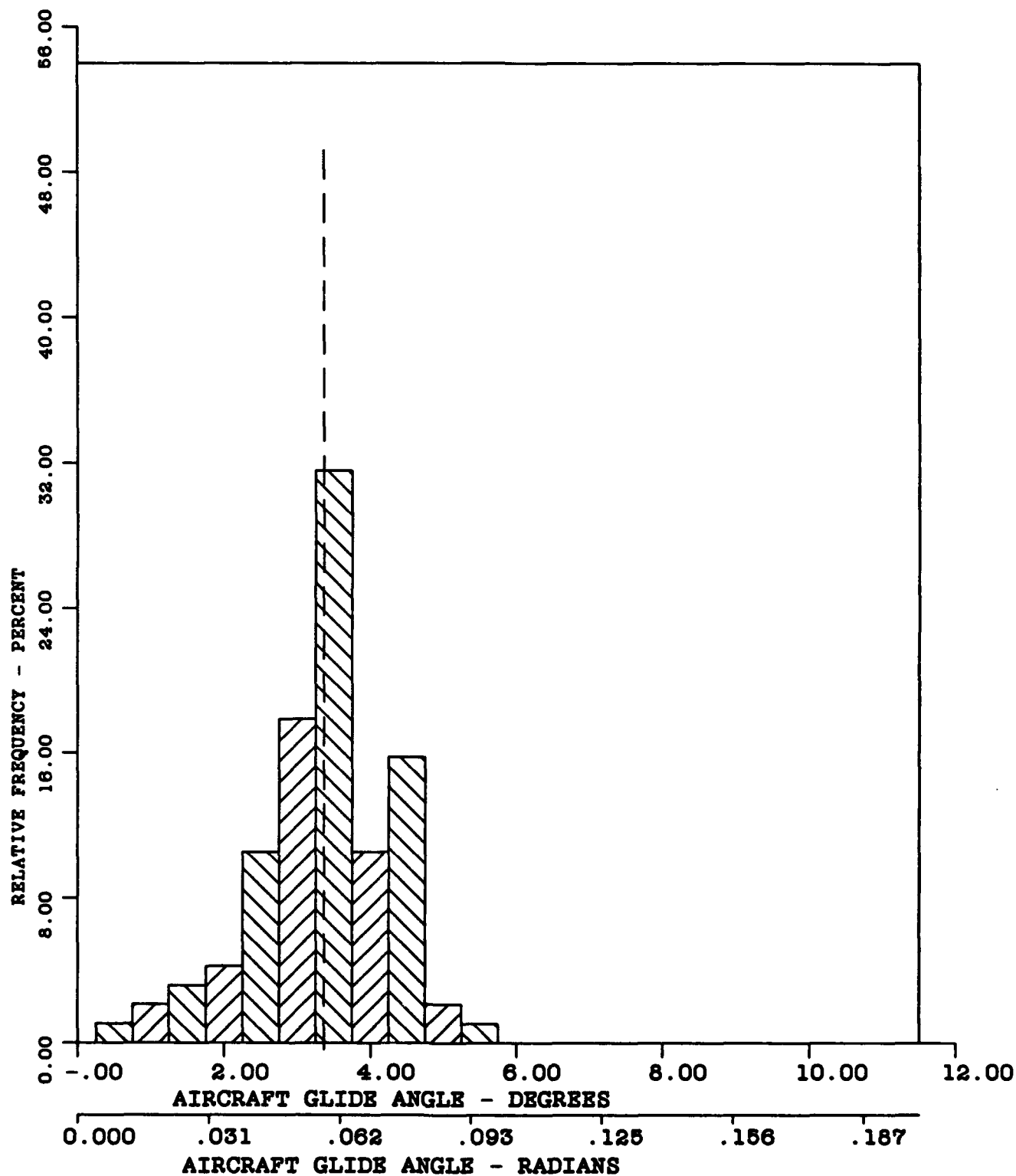


FIGURE C-32 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -108.71 KNOTS (55.92 METRES/SEC)

A3-.74

S-6.65 KNOTS (3.37 METRES/SEC)

A4-4.15

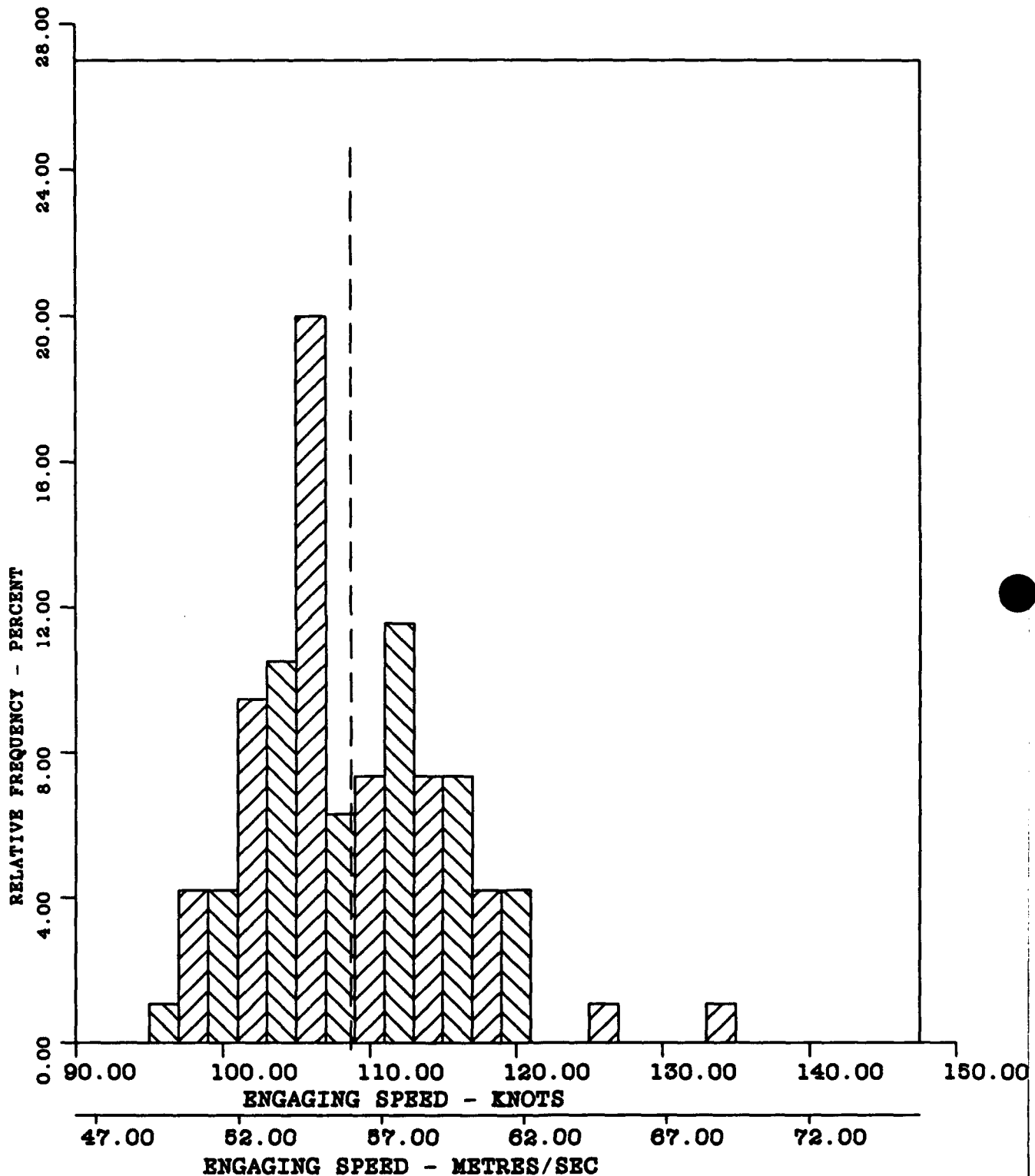


FIGURE C-33 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -108.71 KNOTS (55.92 METRES/SEC)

A3-.74

S-6.55 KNOTS (3.37 METRES/SEC)

A4-4.15

CURVE FITTED - PEARSON TYPE III

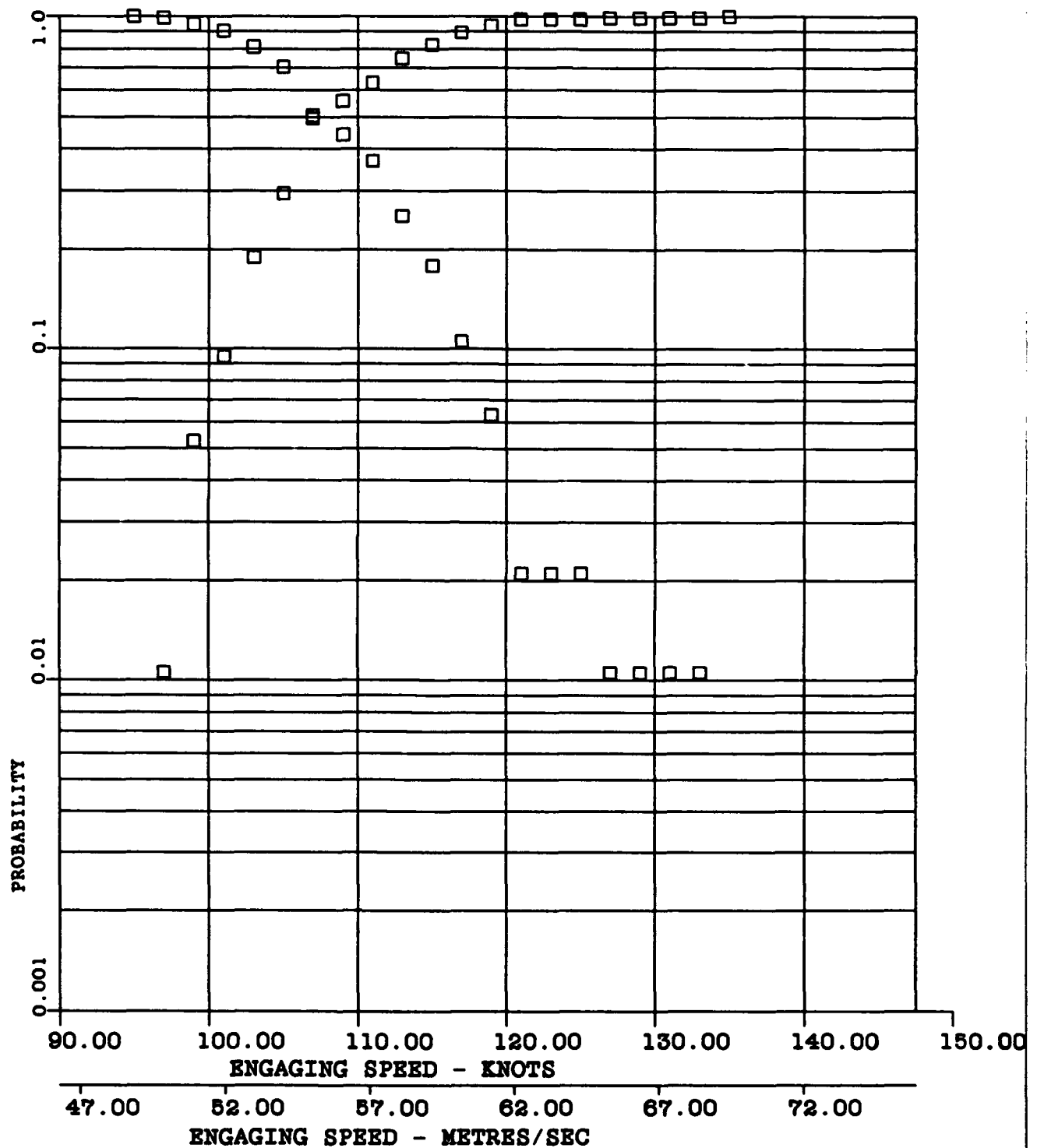


FIGURE C-34 PROBABILITY DISTRIBUTION OF ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -120.70 KNOTS (62.09 METRES/SEC)

A3-- .30

S-1.92 KNOTS (.99 METRES/SEC)

A4-2.99

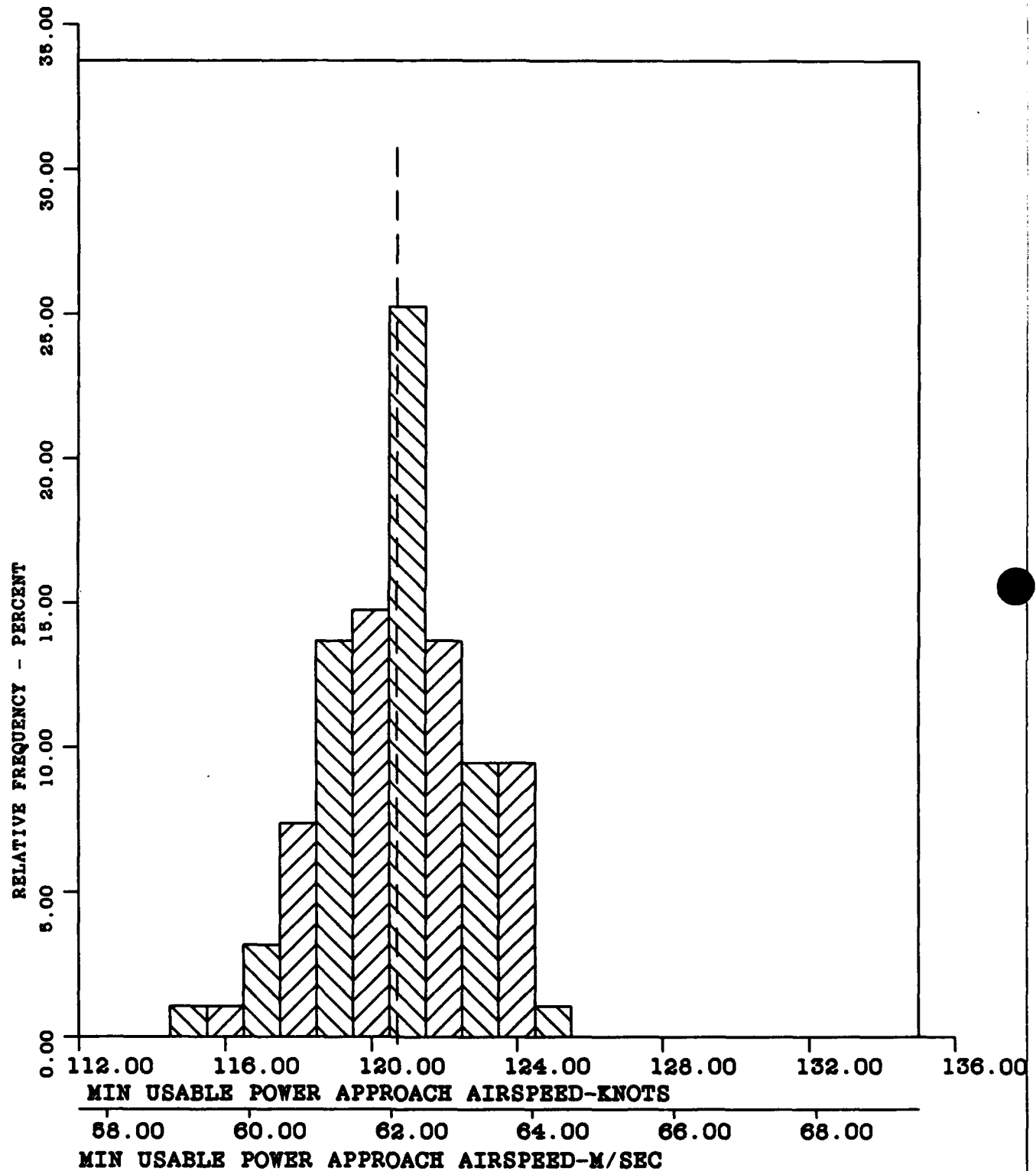


FIGURE C-35 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -1.15

S-.05

A3-.92

A4-5.90

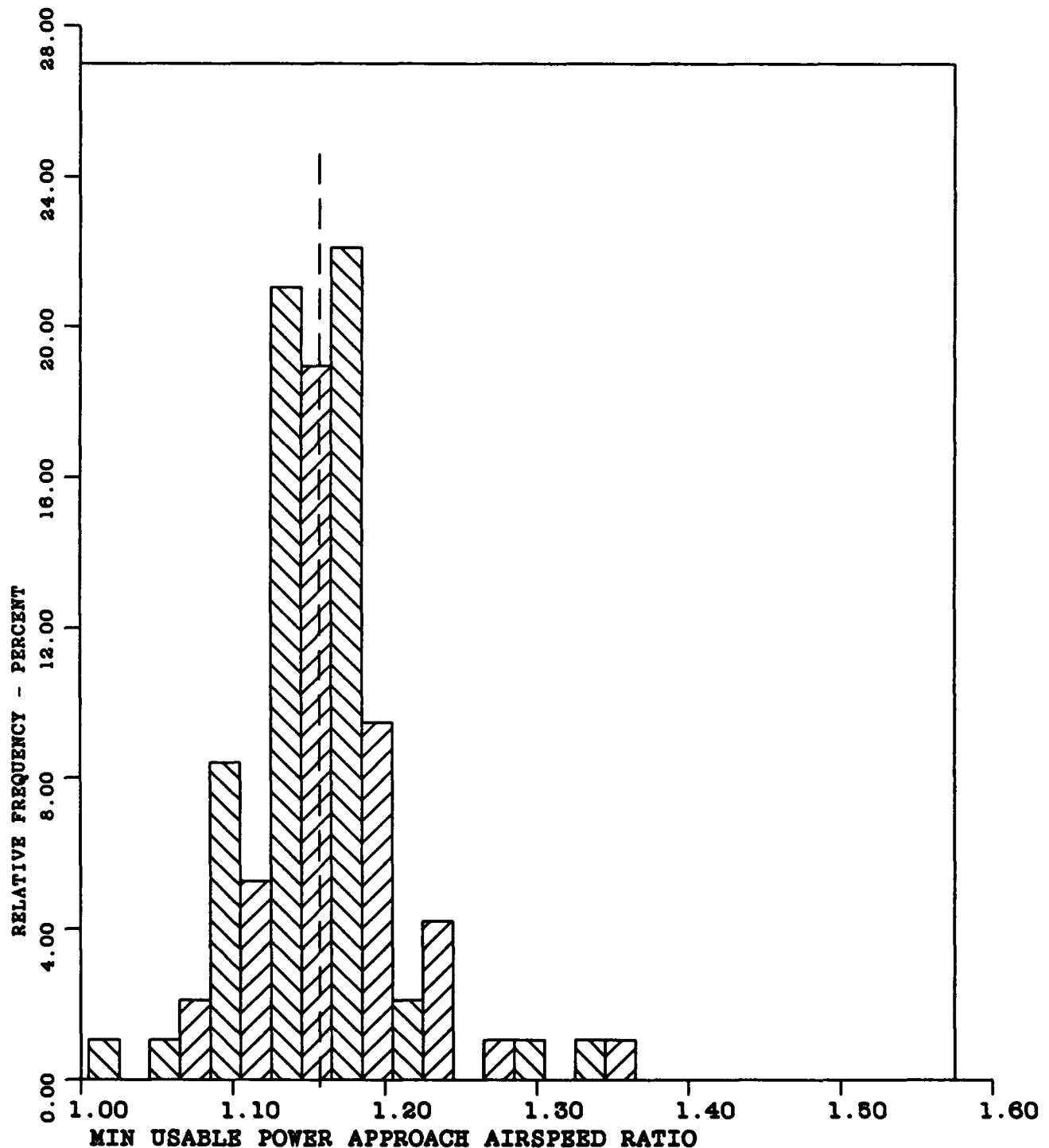


FIGURE C-36 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$  = -.34 DEGREES (-.005 RADIANS)

A3-.13

S = .20 DEGREES (.003 RADIANS)

A4-3.03

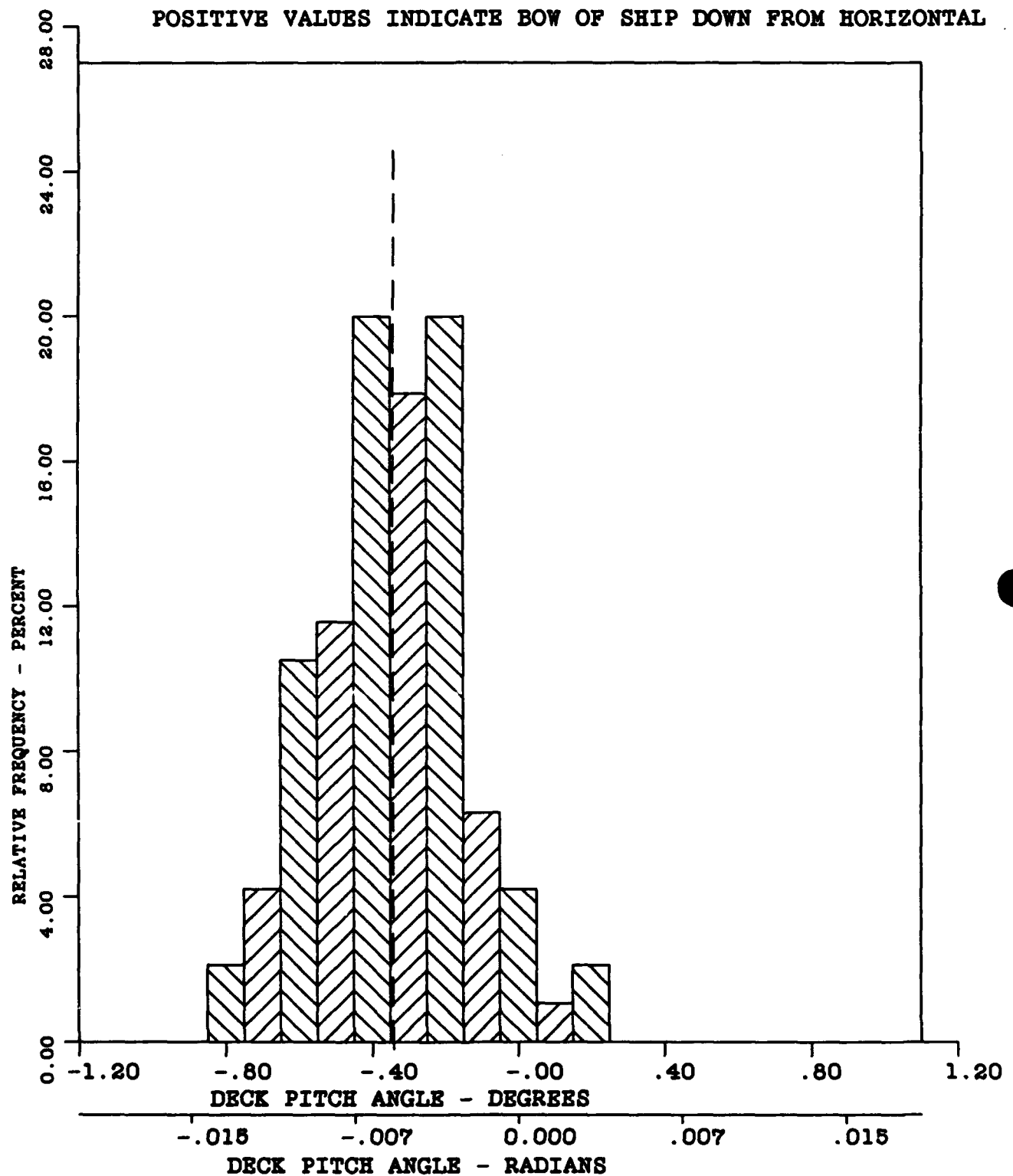


FIGURE C-37 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-95  $\bar{X}$  = -.34 DEGREES (-.005 RADIANS)

A3 = .13

S = .20 DEGREES (.003 RADIANS)

A4 = 3.03

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

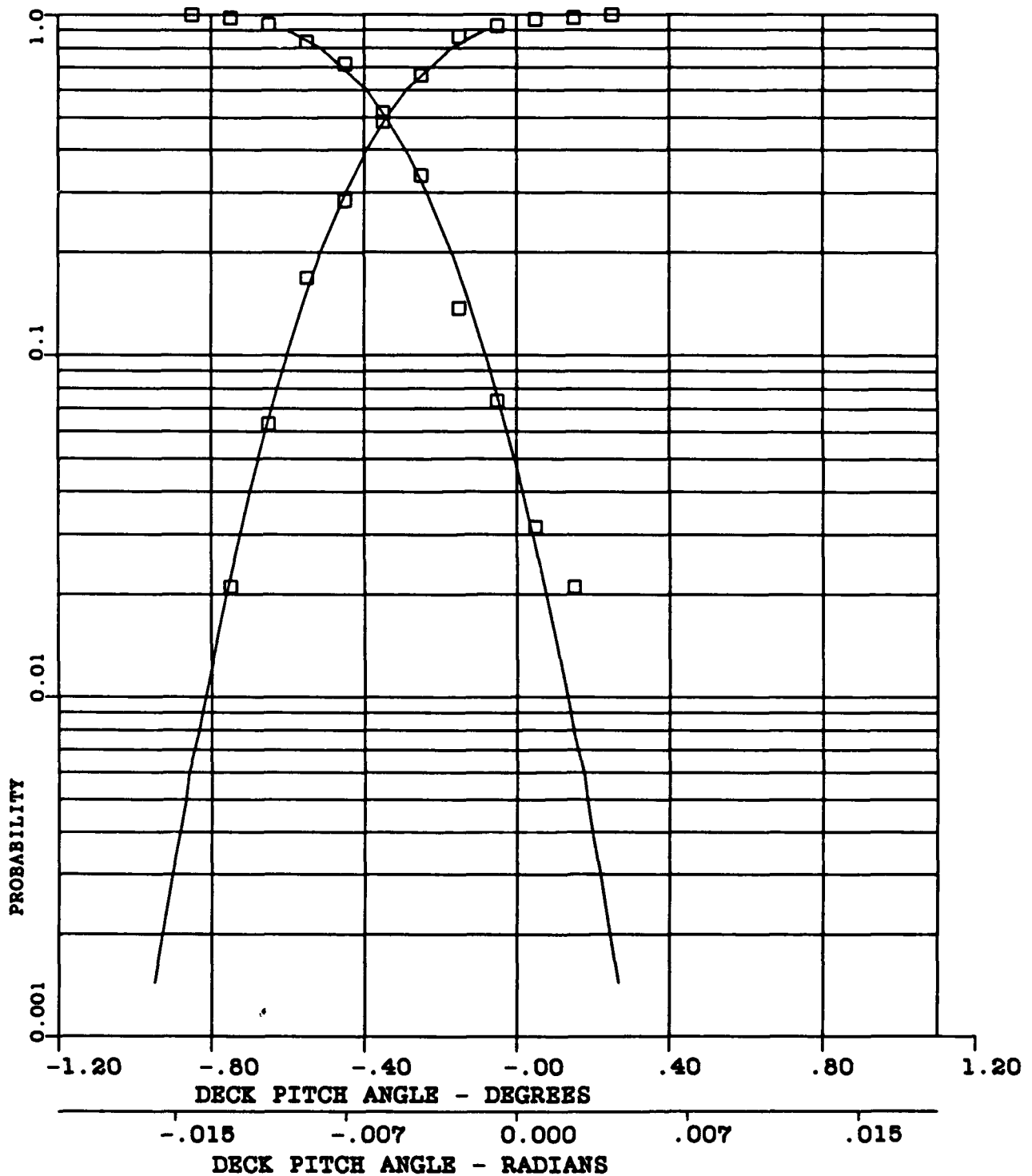


FIGURE C-38 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -47952.69 POUNDS (21751.34 KILOGRAMS)

A3--.26

S-1525.42 POUNDS (691.93 KILOGRAMS)

A4-2.93

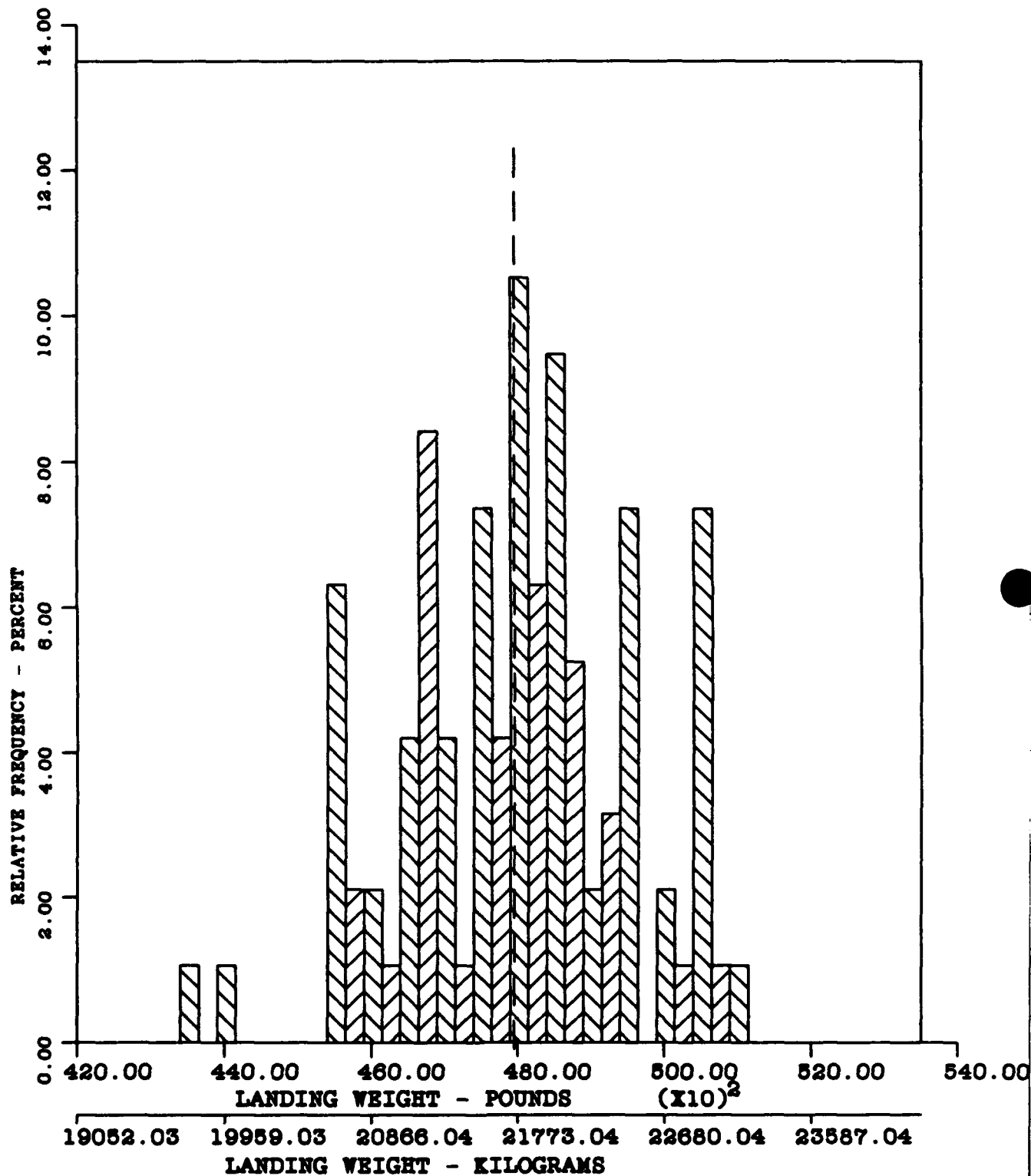


FIGURE C-39 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -1.26 DEG/SEC (.022 RAD/SEC)

A3-.19

S-6.84 DEG/SEC (.119 RAD/SEC)

A4-3.47

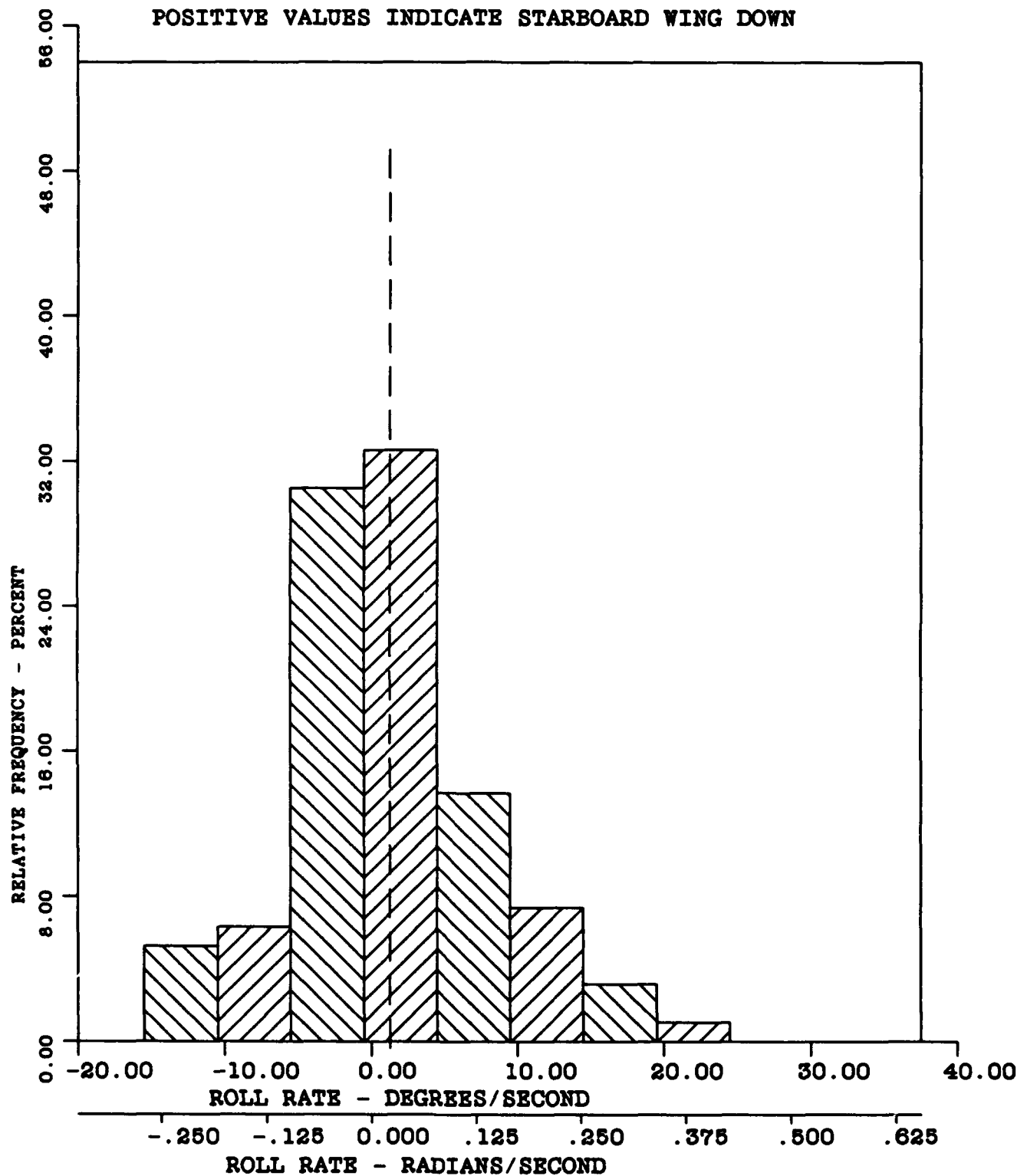


FIGURE C-40 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN



MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ =1.26 DEG/SEC (.022 RAD/SEC)

A3=.19

S=6.84 DEG/SEC (.119 RAD/SEC)

A4=3.47

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

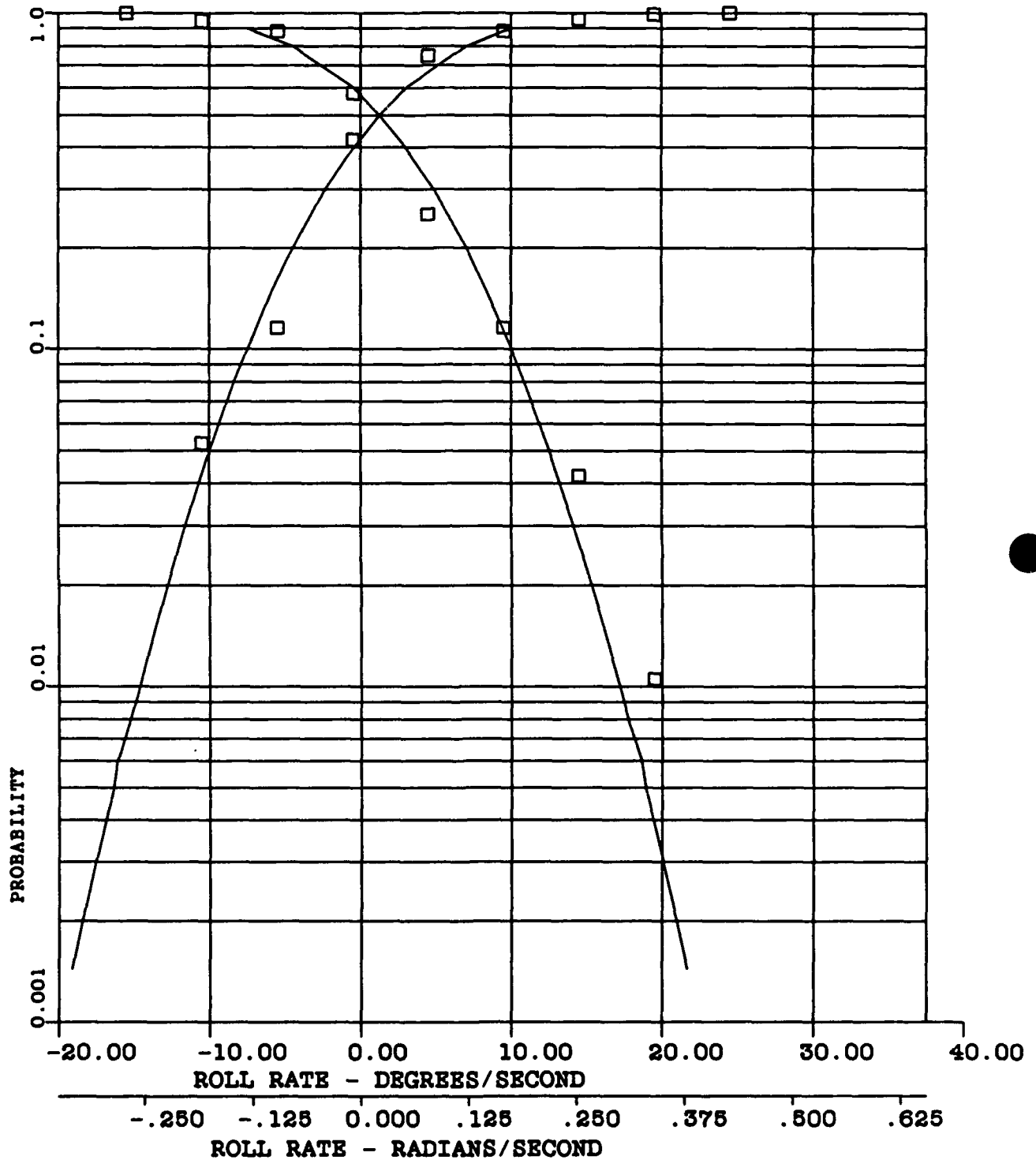


FIGURE C-41 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ =-1.21 DEG/SEC (.021 RAD/SEC)

A3-1.15

S=-1.95 DEG/SEC (.034 RAD/SEC)

A4-4.19

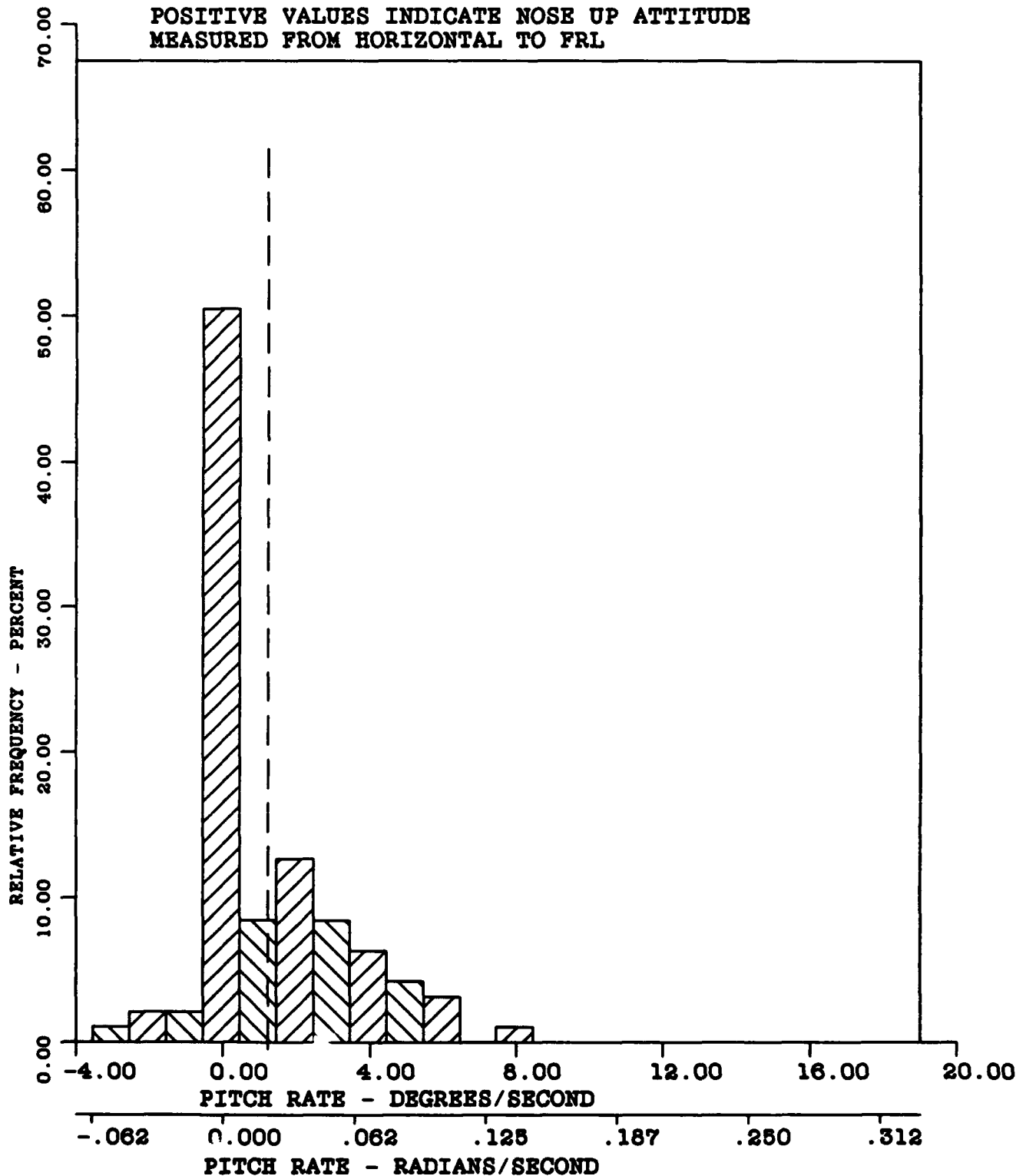


FIGURE C-42 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -1.21 DEG/SEC (.021 RAD/SEC)

A3-1.15

S-1.95 DEG/SEC (.034 RAD/SEC)

A4-4.19

CURVE FITTED - PEARSON TYPE III

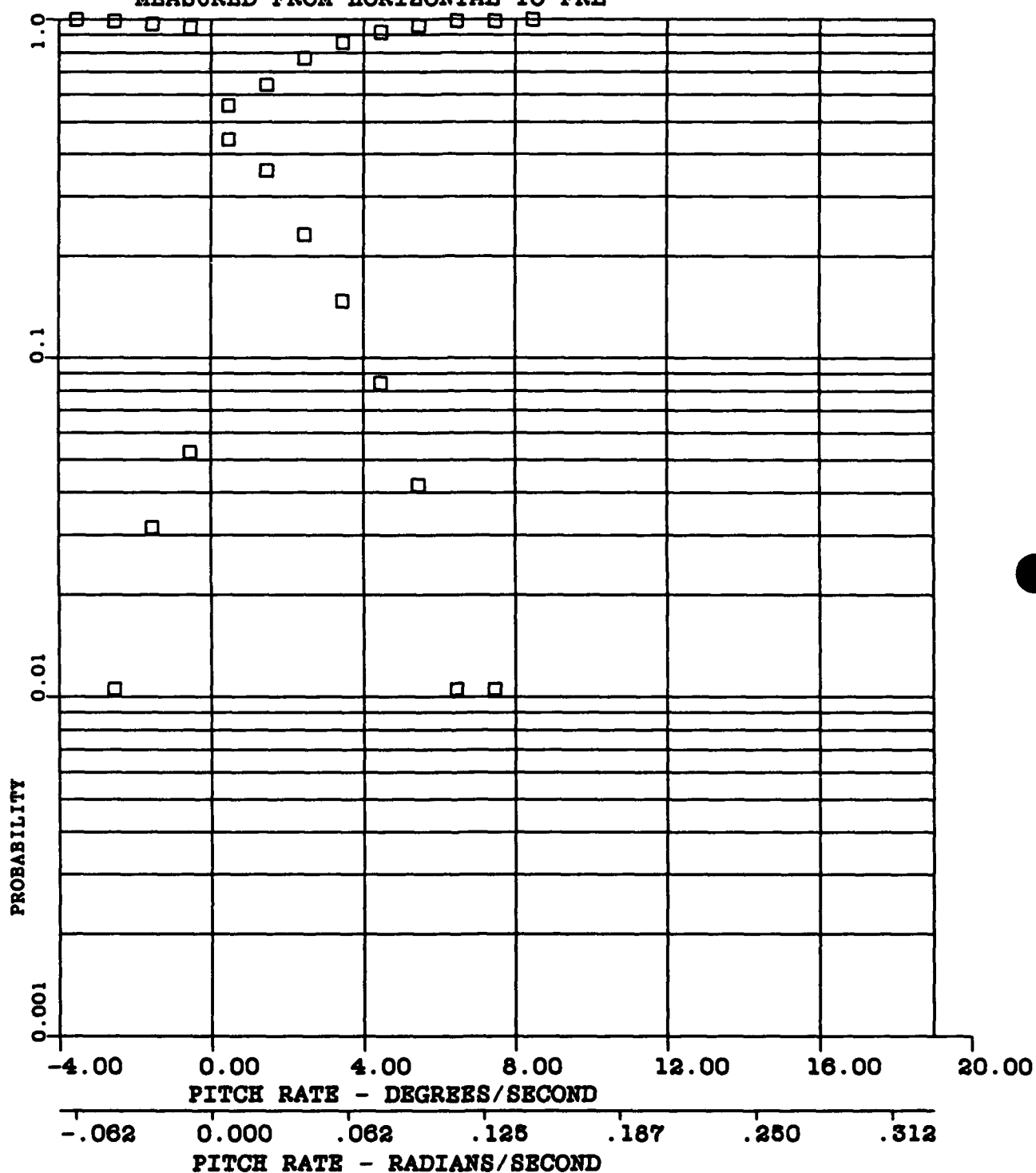
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE C-43 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ =-3.36 DEGREES (-.058 RADIANS)

A3=-.18

S=1.89 DEGREES (.033 RADIANS)

A4=4.96

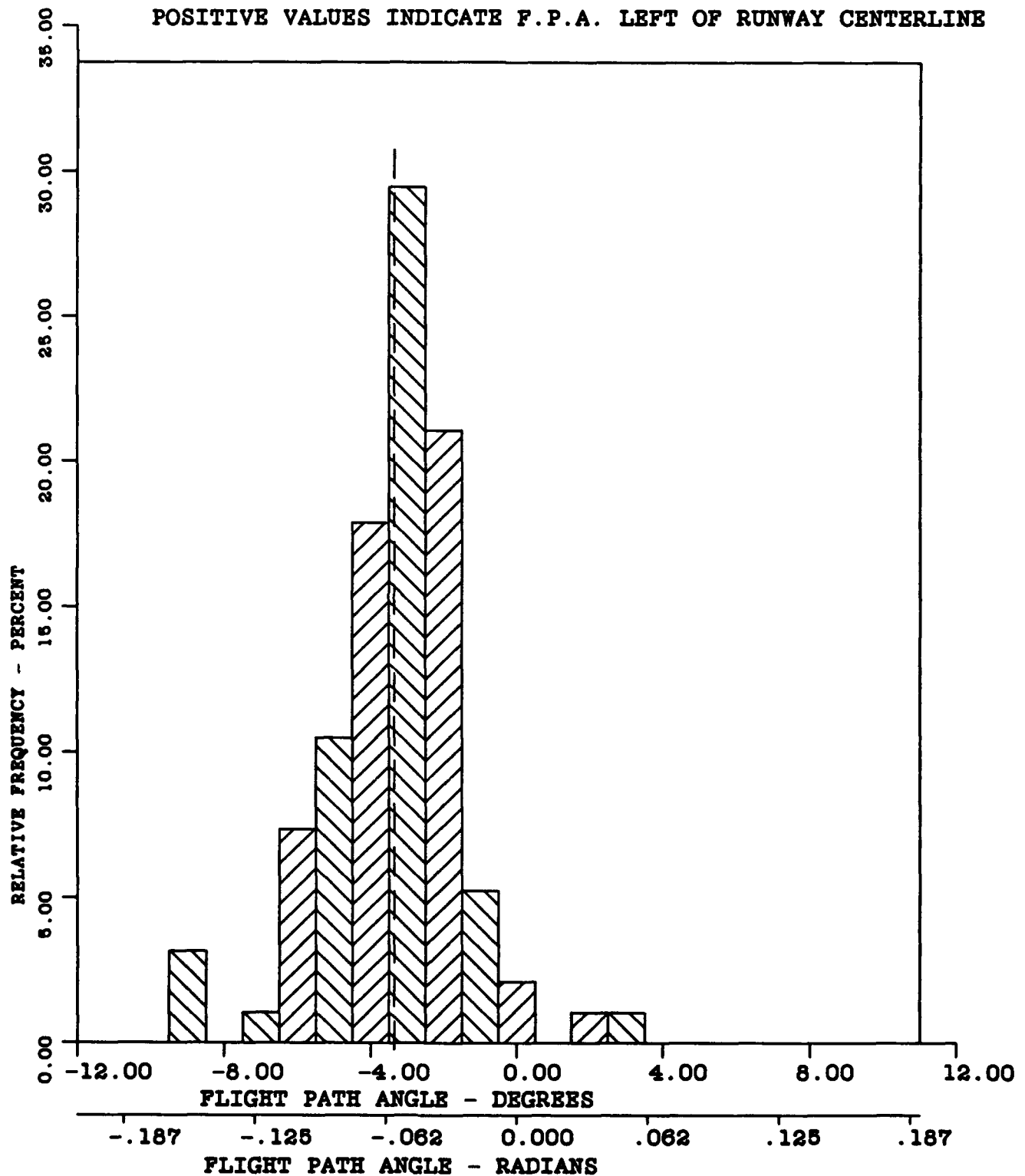


FIGURE C-44 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -3.36 DEGREES (-.058 RADIANS)

A3--.18

S-1.89 DEGREES (.033 RADIANS)

A4-4.96

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

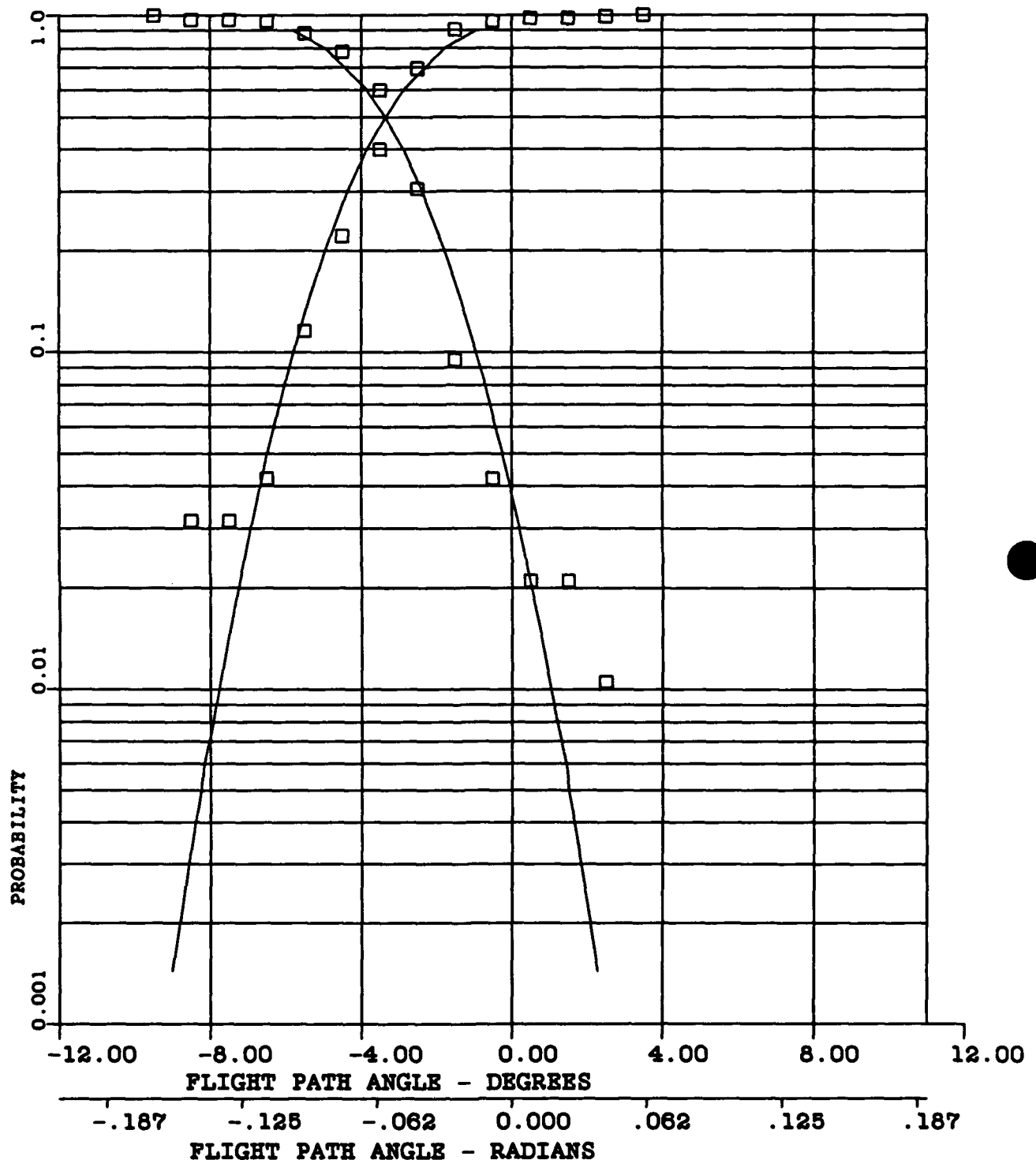


FIGURE C-45 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -6.16 DEGREES (.107 RADIANS)

A3-.27

S-2.87 DEGREES (.050 RADIANS)

A4-2.79

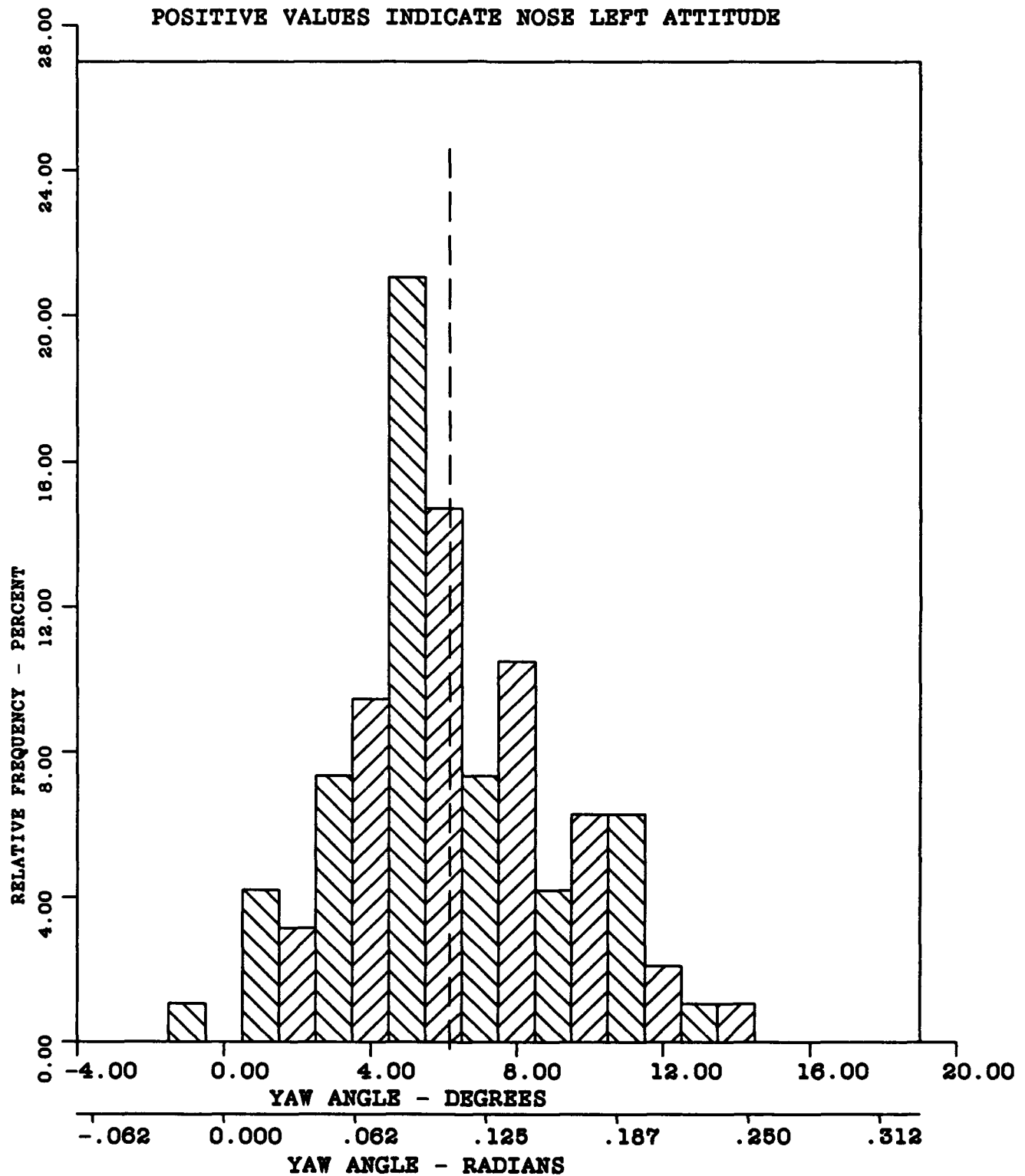


FIGURE C-46 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL F-14A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-95

 $\bar{X}$ -6.16 DEGREES (.107 RADIANS)

A3-.27

S-2.87 DEGREES (.050 RADIANS)

A4-2.79

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

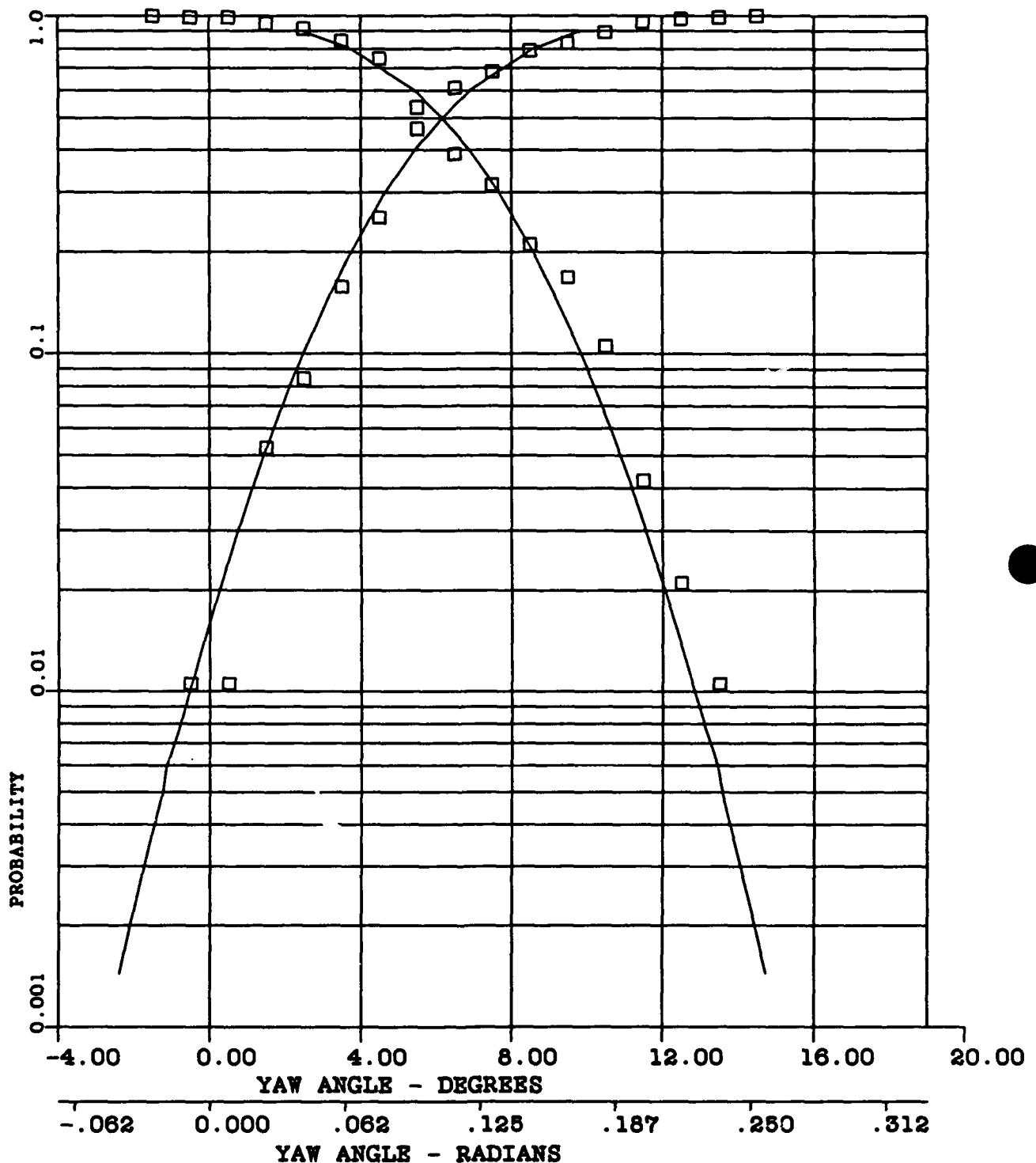


FIGURE C-47 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX D**

**F-18 AIRCRAFT**

**DAY CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**



Appendix D:

Frequency and Probability Distributions,  
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MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-190

 $\bar{X}$ -26.00 KNOTS (13.37 METRES/SEC)

A3-.25

S-2.91 KNOTS (1.49 METRES/SEC)

A4-1.76

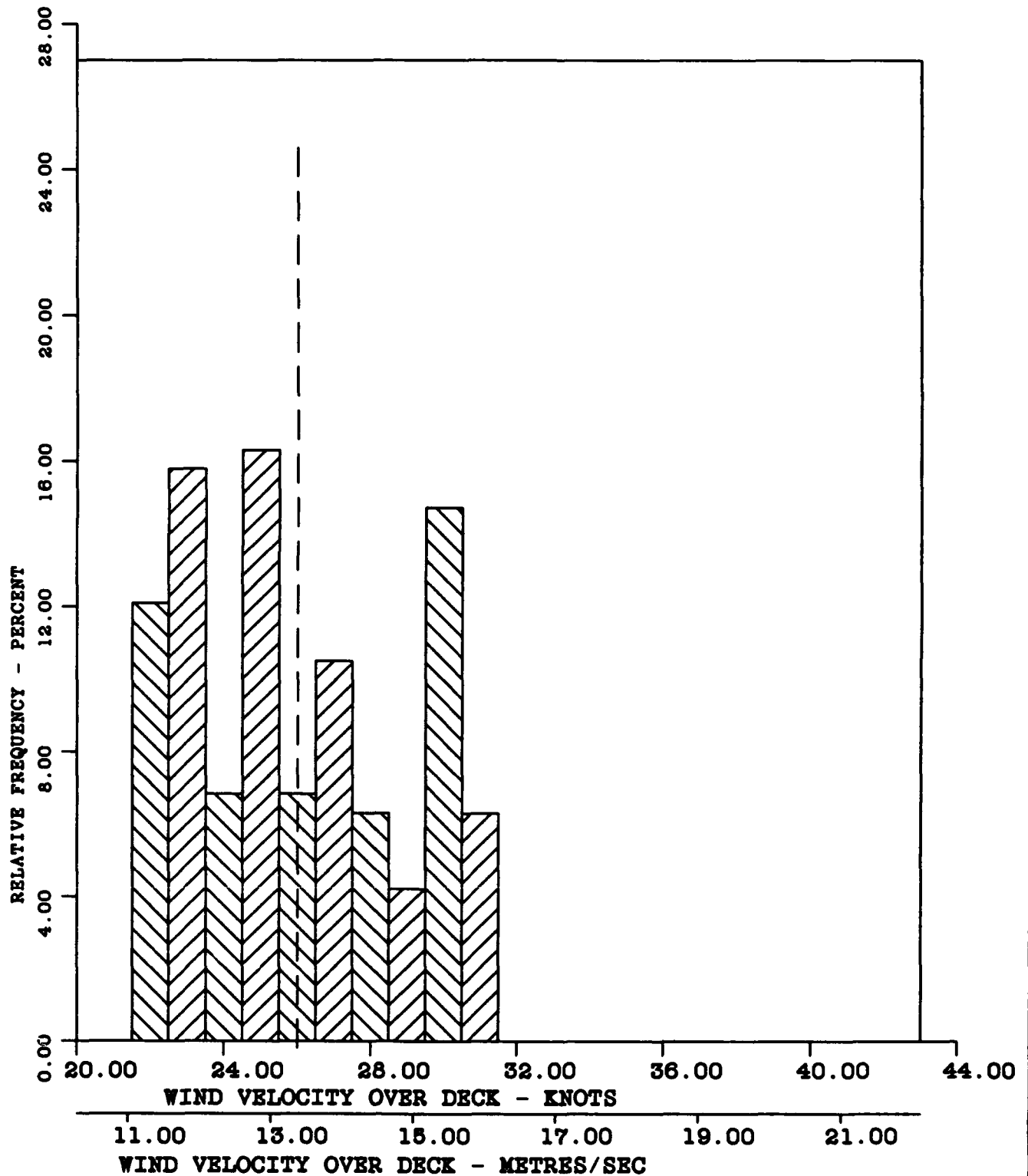


FIGURE D-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-190

 $\bar{X}$ -26.00 KNOTS (13.37 METRES/SEC)

A3-.25

S-2.91 KNOTS (1.49 METRES/SEC)

A4-1.76

CURVE FITTED - NORMAL

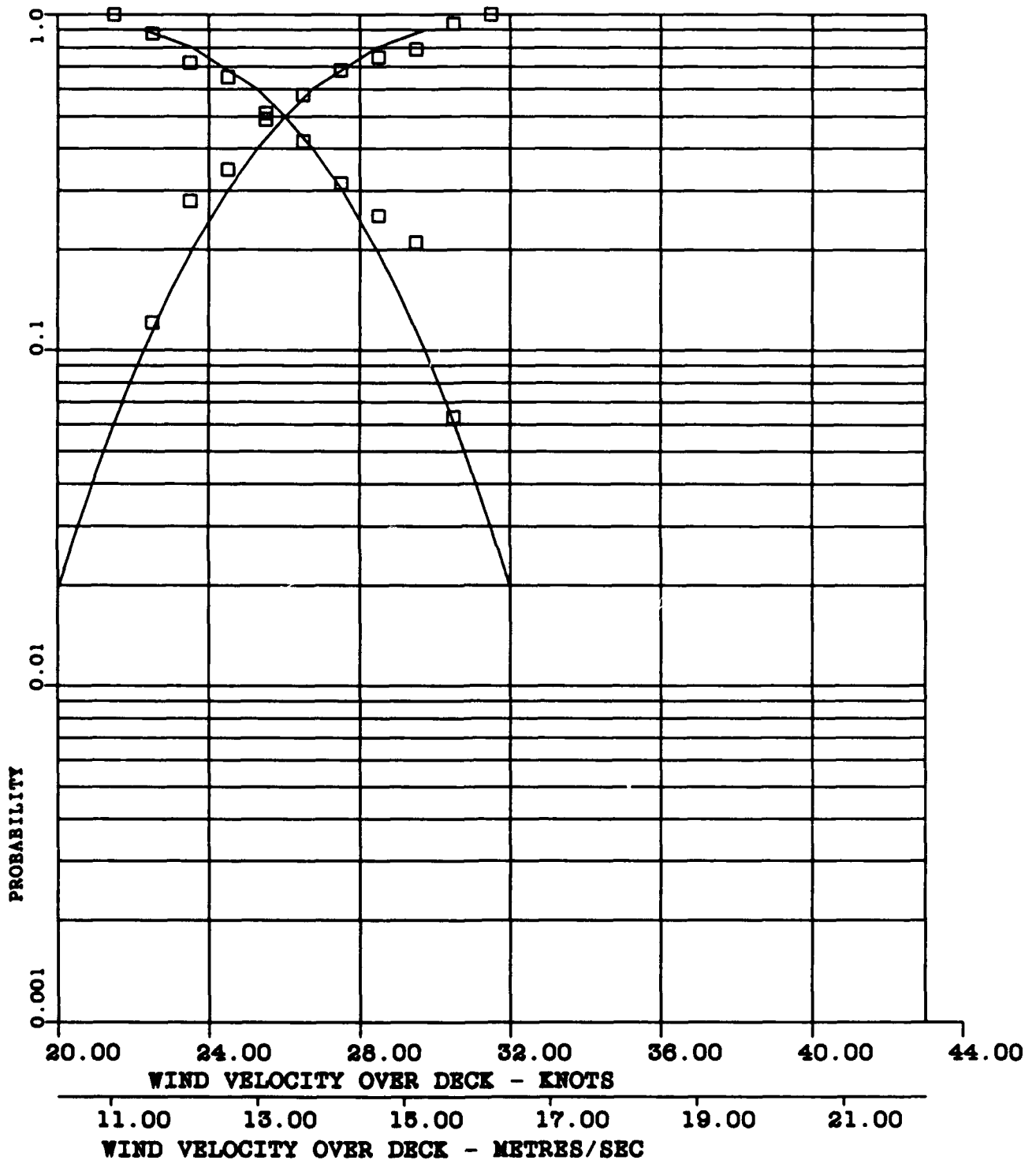


FIGURE D-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-190

 $\bar{X}$ -145.22 KNOTS (74.70 METRES/SEC)

S-5.03 KNOTS (2.59 METRES/SEC)

A3-.16

A4-3.38

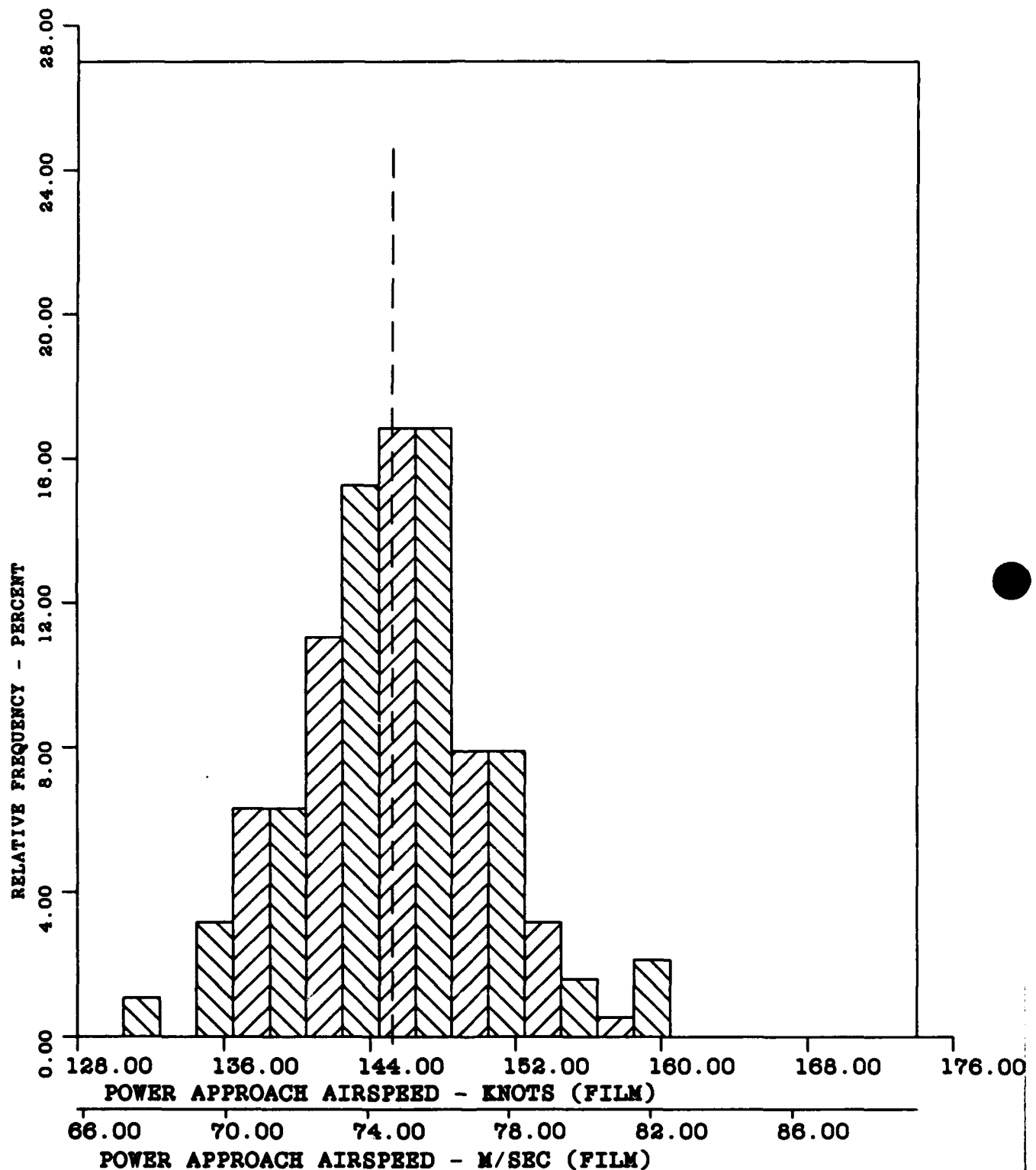


FIGURE D-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-190

 $\bar{X}$ -145.22 KNOTS (74.70 METRES/SEC)

S-5.03 KNOTS (2.59 METRES/SEC)

CURVE FITTED - NORMAL

A3-.16

A4-3.38

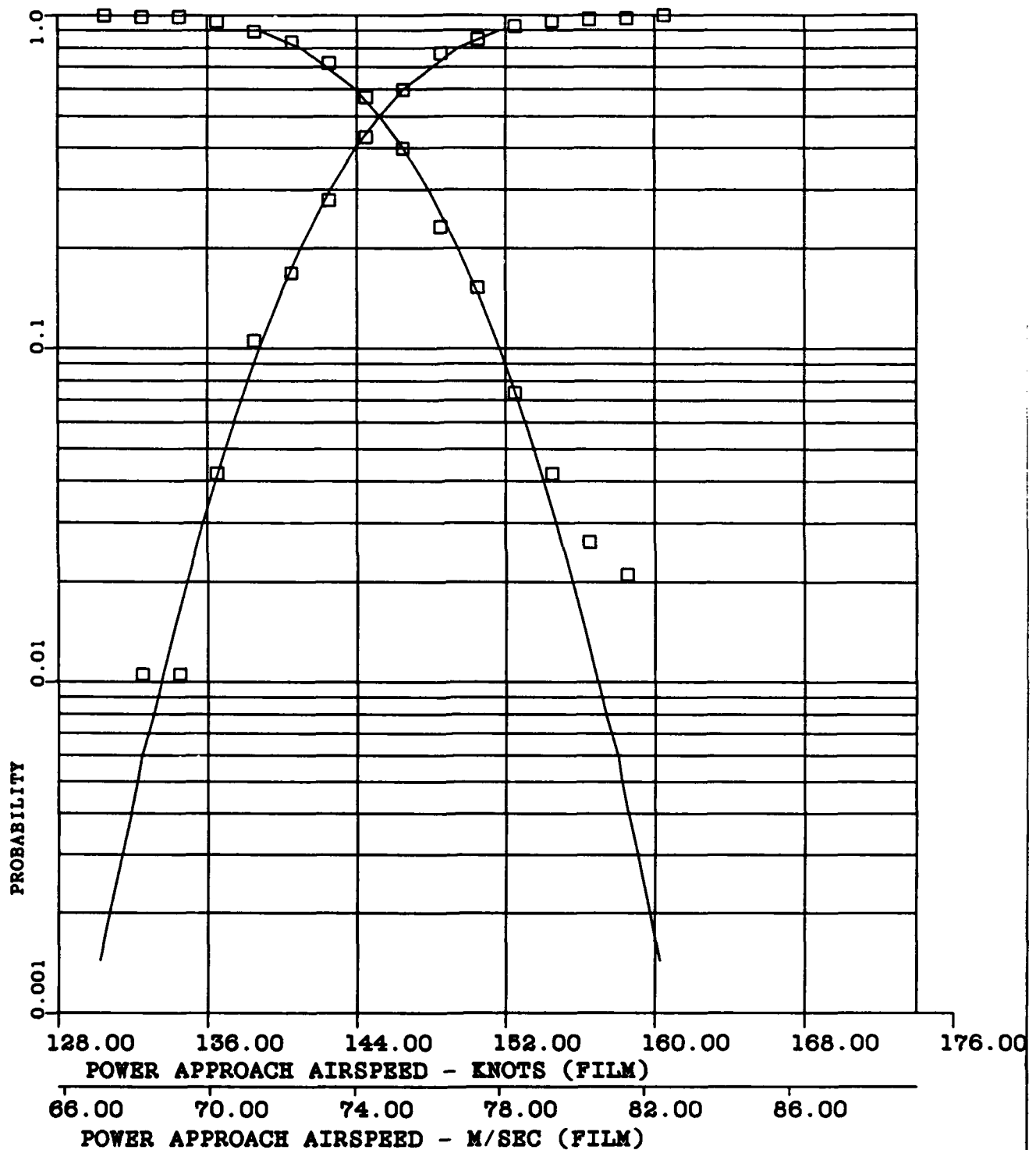


FIGURE D-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-187

 $\bar{X}$ -16.93 FEET (5.16 METRES)

S-2.70 FEET (.82 METRES)

A3-.21

A4-3.14

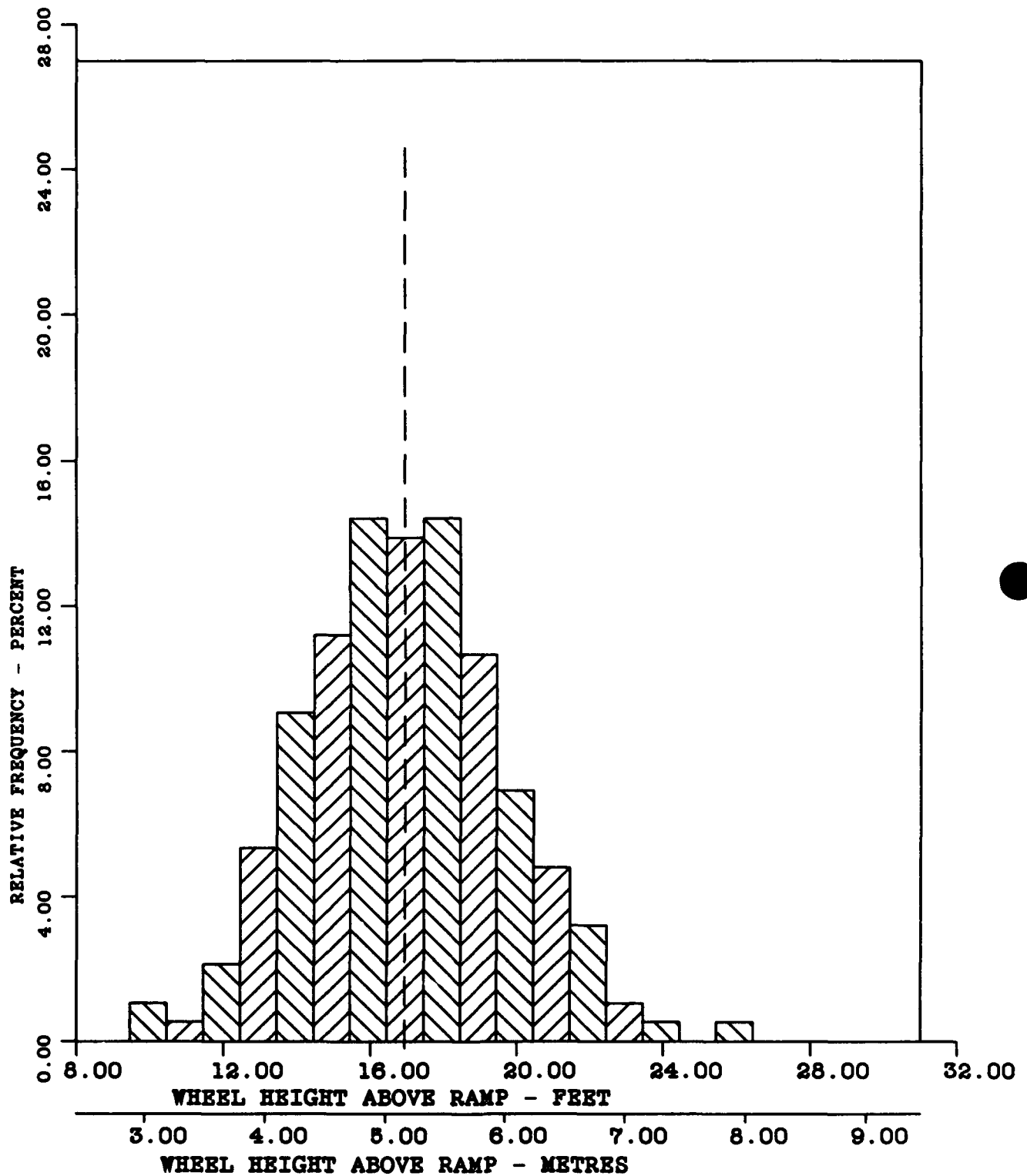


FIGURE D-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-187

 $\bar{X}$ -16.93 FEET (5.16 METRES)

A3-.21

S-2.70 FEET (.82 METRES)

A4-3.14

CURVE FITTED - NORMAL

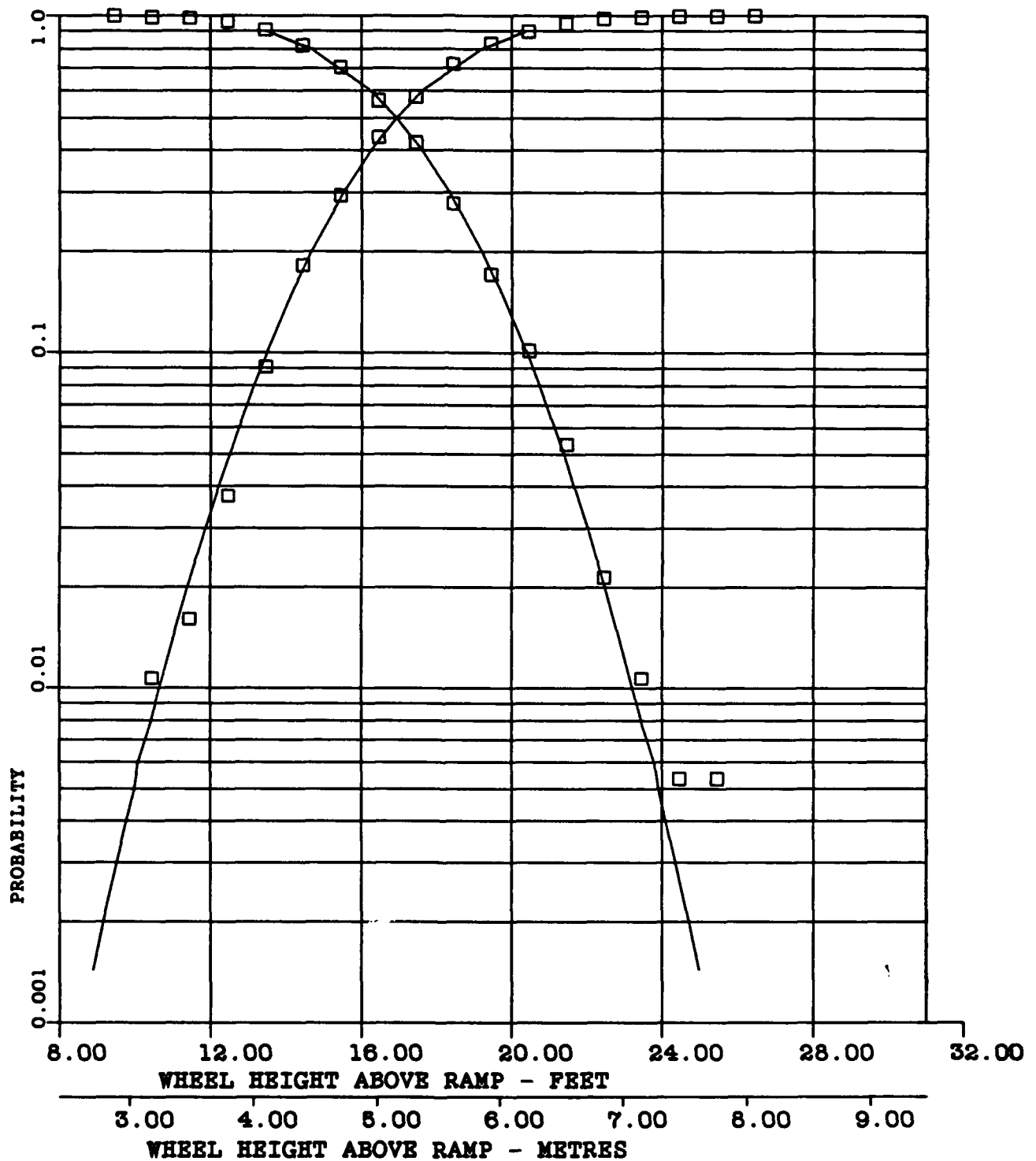


FIGURE D-6 PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -10.63 FEET/SEC (3.24 METRES/SEC)

A3--.11

S-2.30 FEET/SEC (.70 METRES/SEC)

A4-3.52

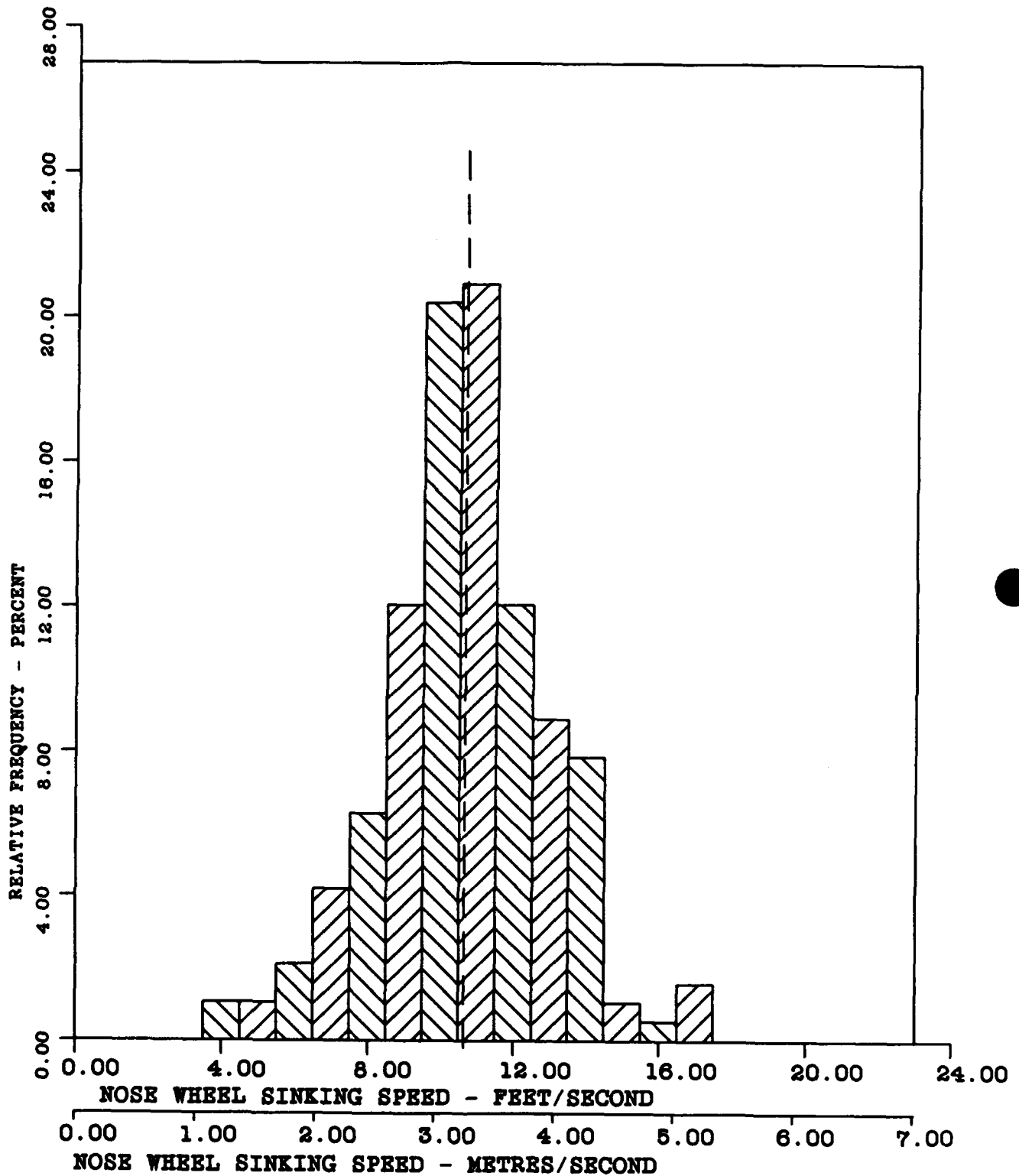


FIGURE D-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -10.63 FEET/SEC (3.24 METRES/SEC)

A3--.11

S-2.30 FEET/SEC (.70 METRES/SEC)

A4-3.52

CURVE FITTED - NORMAL

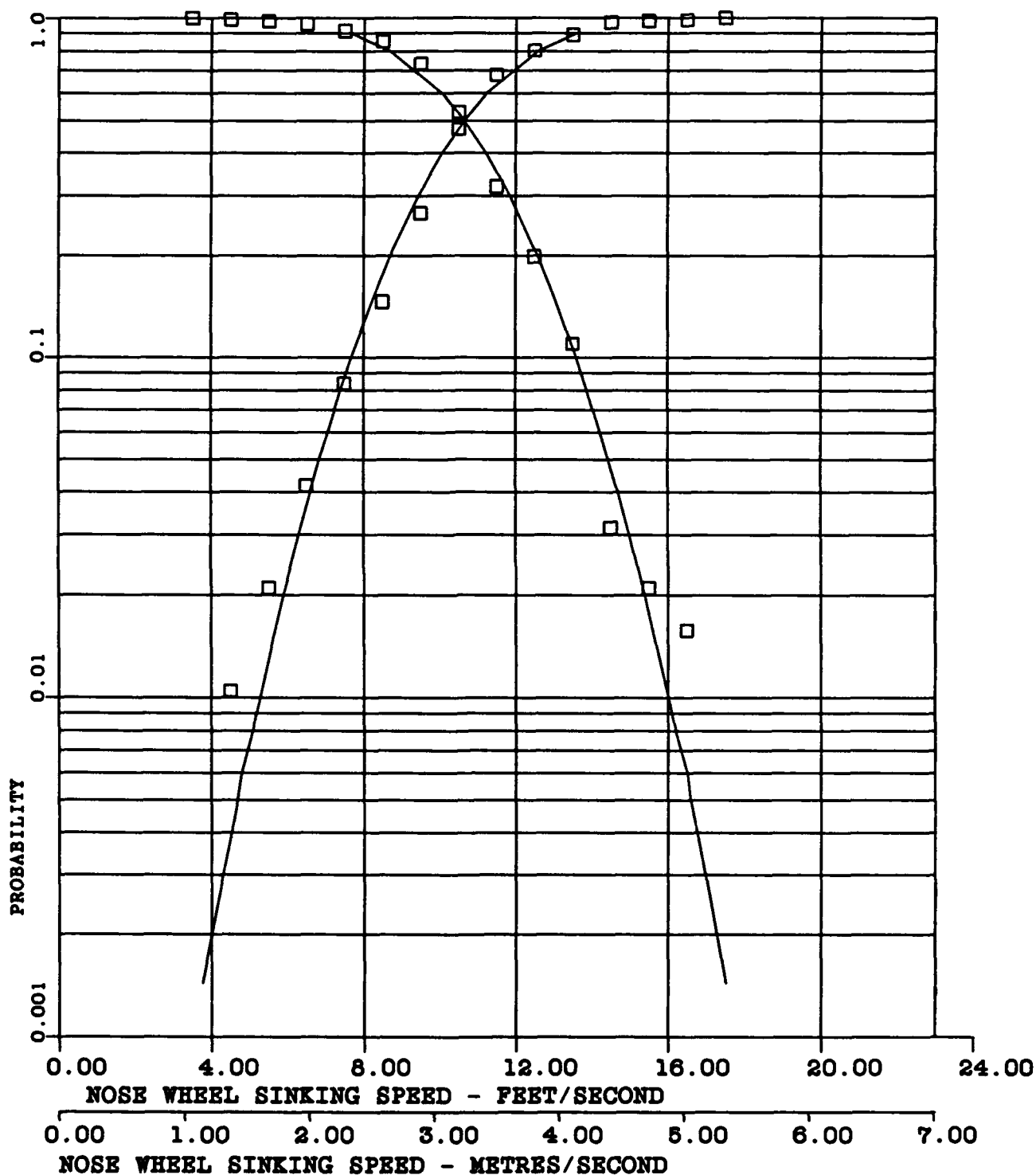


FIGURE D-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -12.02 FEET/SEC (3.66 METRES/SEC)

A3-.00

S-2.24 FEET/SEC (.68 METRES/SEC)

A4-3.90

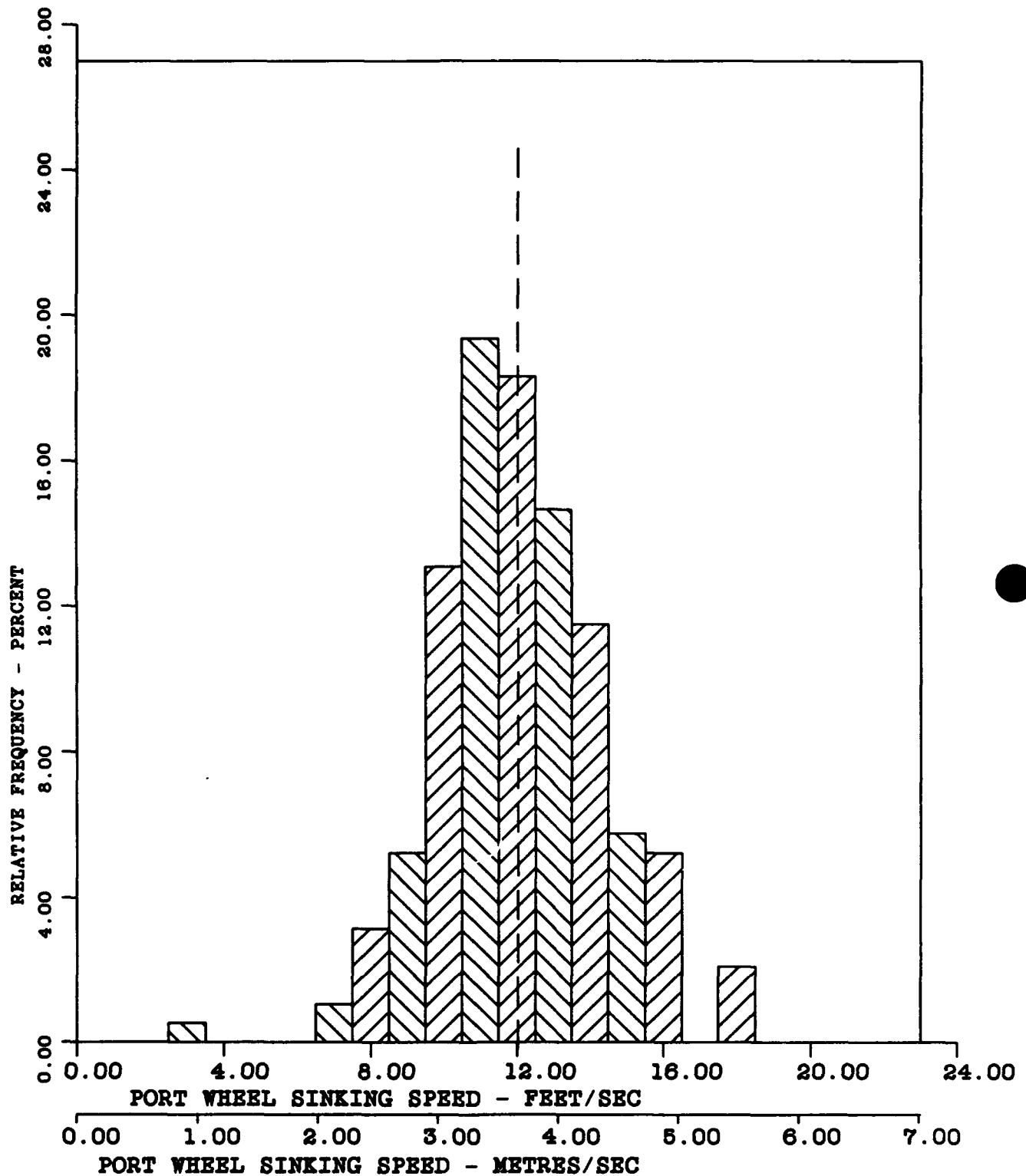


FIGURE D-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -12.02 FEET/SEC (3.66 METRES/SEC)

A3-.00

S-2.24 FEET/SEC (.68 METRES/SEC)

A4-3.90

CURVE FITTED - NORMAL

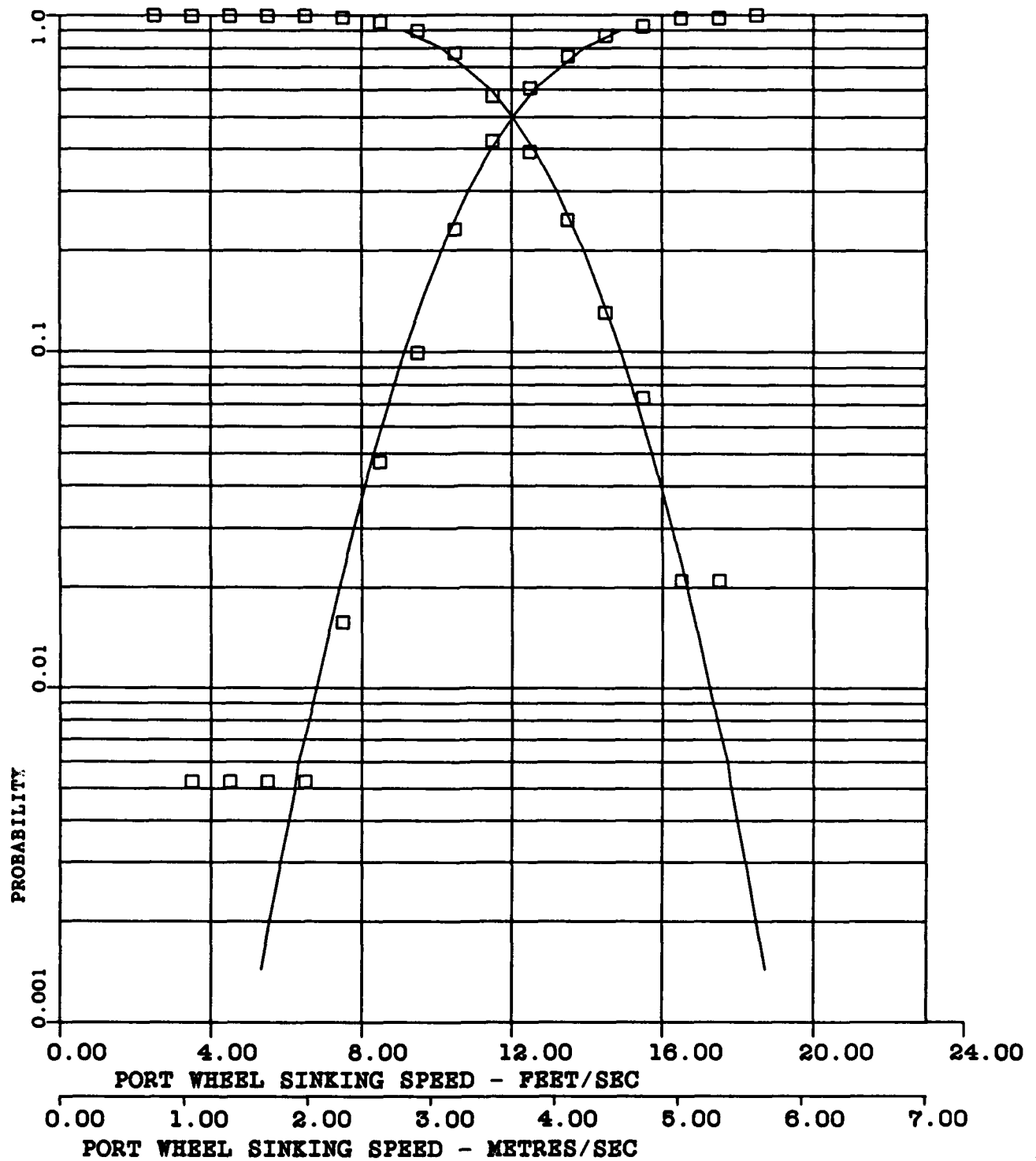


FIGURE D-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -12.01 FEET/SEC (3.66 METRES/SEC)

A3--.39

S-2.28 FEET/SEC (.69 METRES/SEC)

A4-4.86

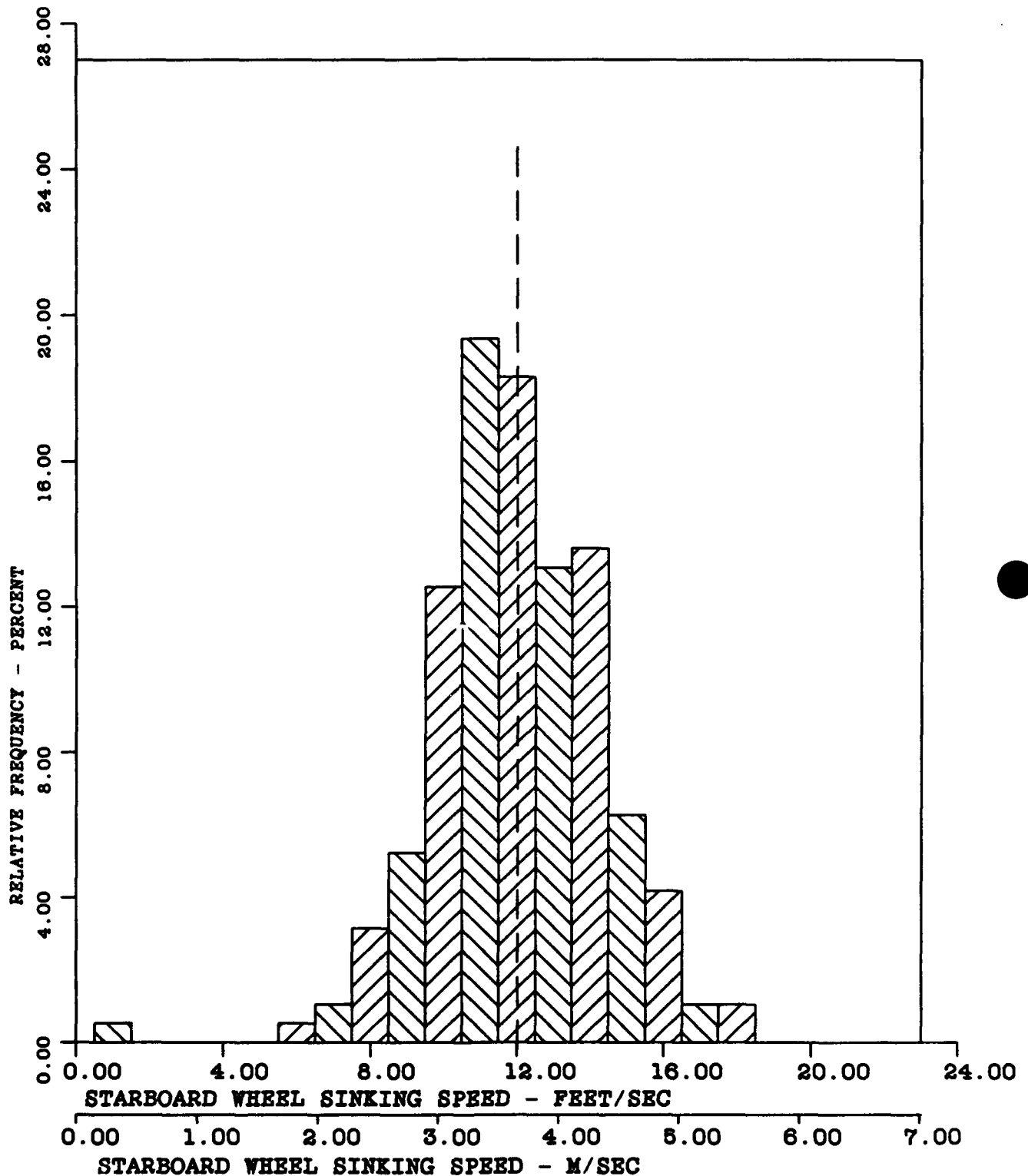


FIGURE D-11 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -12.01 FEET/SEC (3.66 METRES/SEC)

A3--.39

S-2.28 FEET/SEC (.69 METRES/SEC)

A4-4.86

CURVE FITTED - PEARSON TYPE III

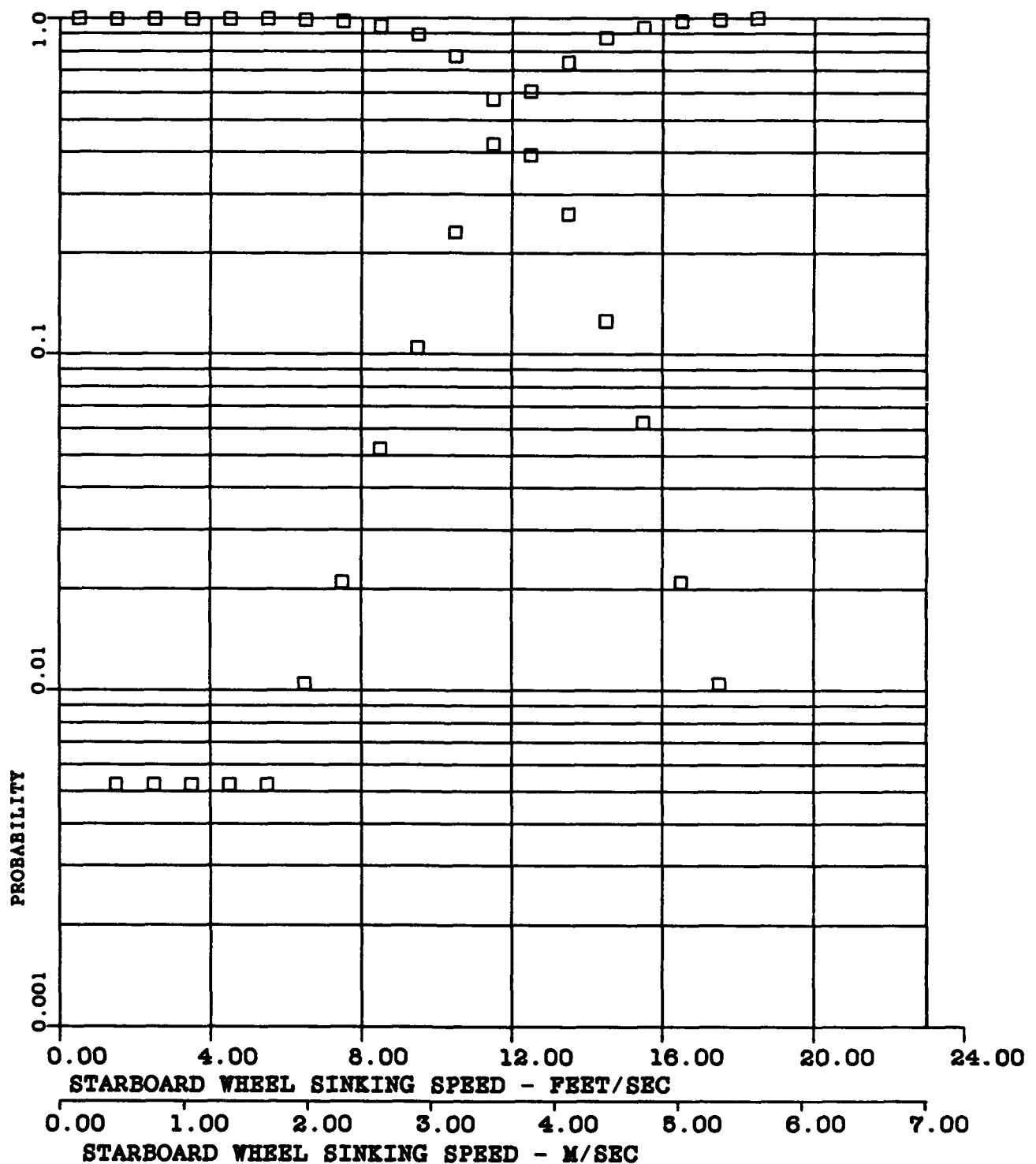


FIGURE D-12 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -12.03 FEET/SEC (3.66 METRES/SEC)

A3--.07

S-2.14 FEET/SEC (.65 METRES/SEC)

A4-4.09

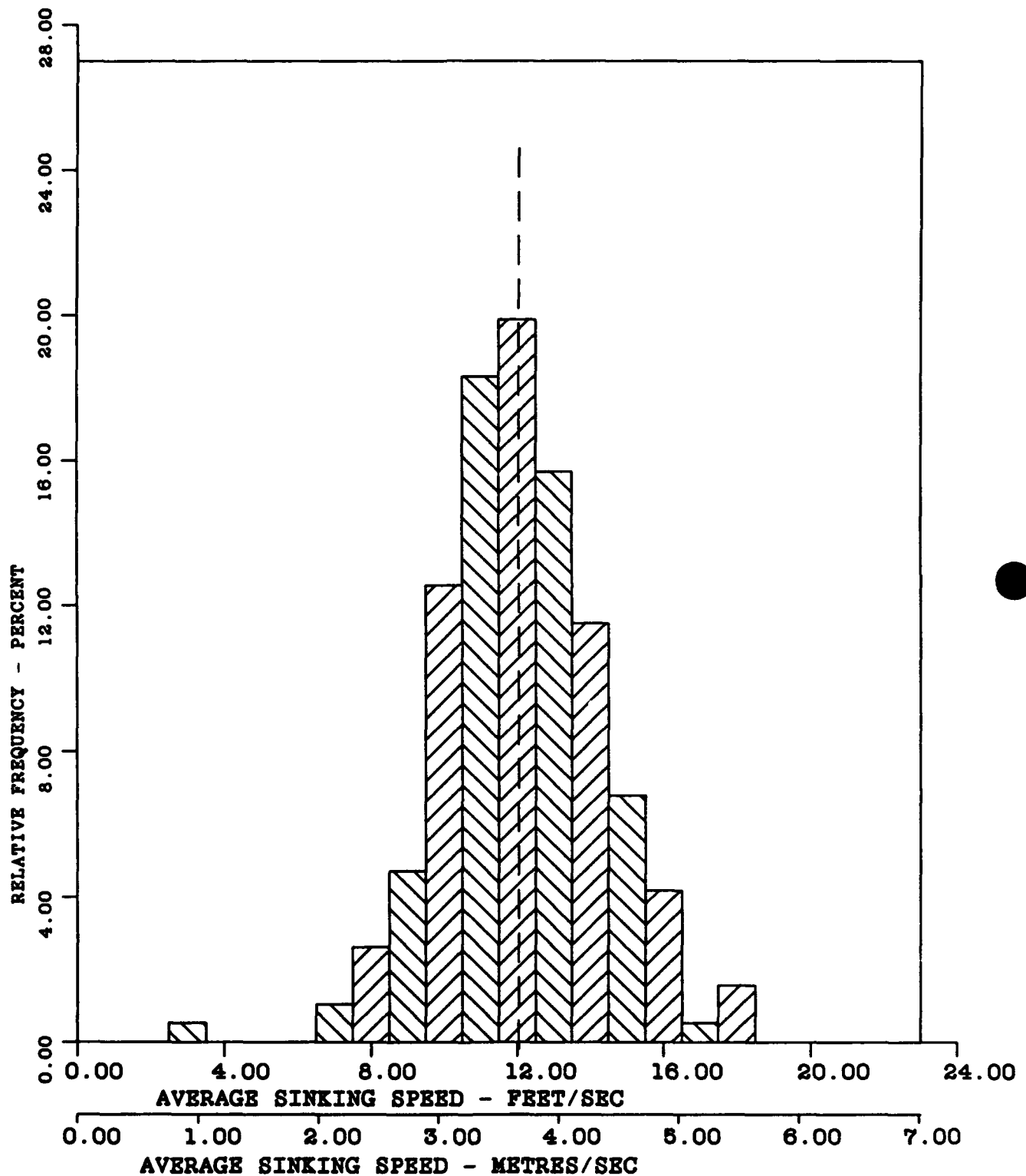


FIGURE D-13 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -12.03 FEET/SEC (3.66 METRES/SEC)

A3--.07

S-2.14 FEET/SEC (.65 METRES/SEC)

A4-4.09

CURVE FITTED - NORMAL

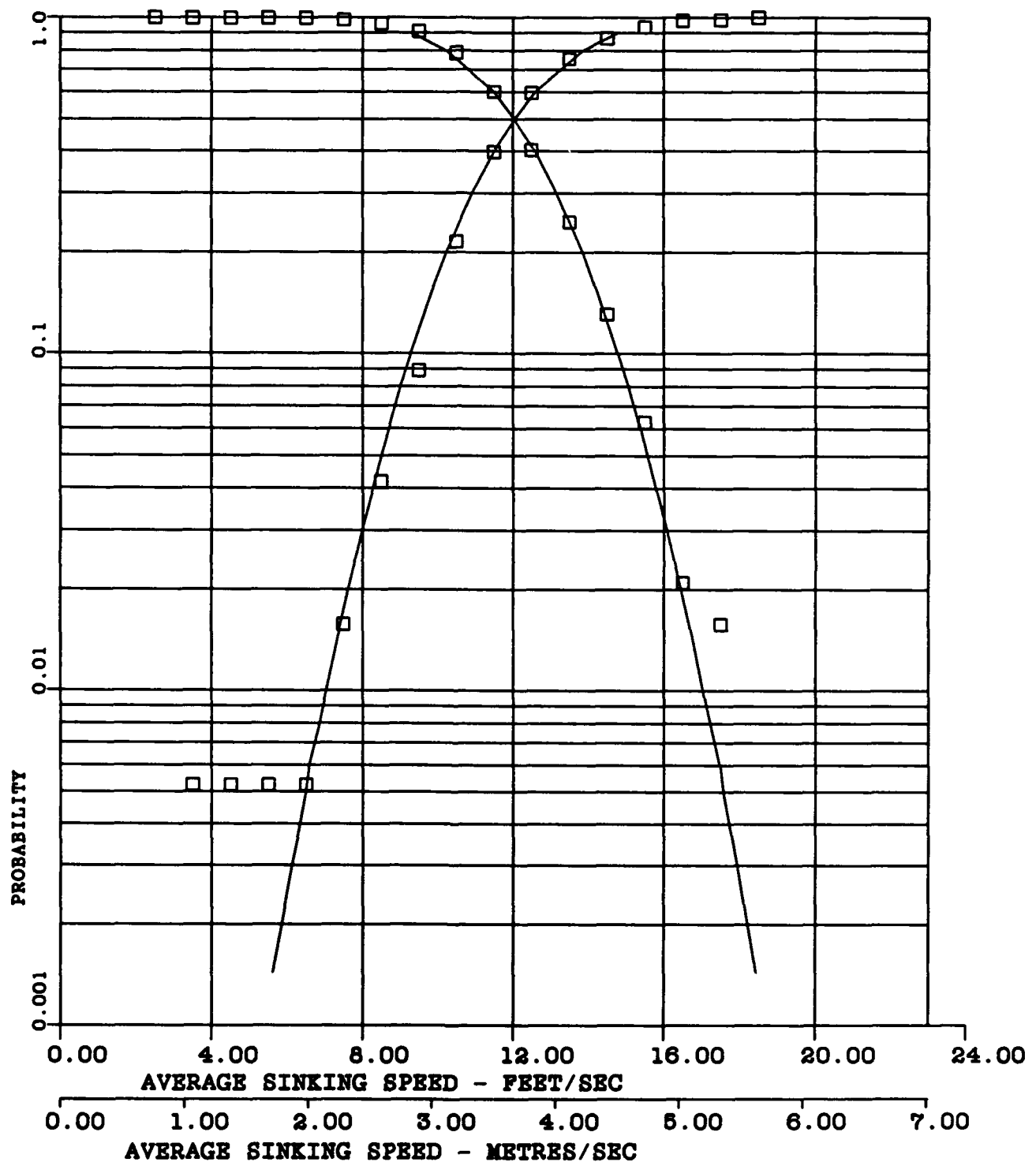


FIGURE D-14 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-10

 $\bar{X}$ -12.49 FEET/SEC (3.80 METRES/SEC)

A3-.57

S-1.90 FEET/SEC (.58 METRES/SEC)

A4-2.10

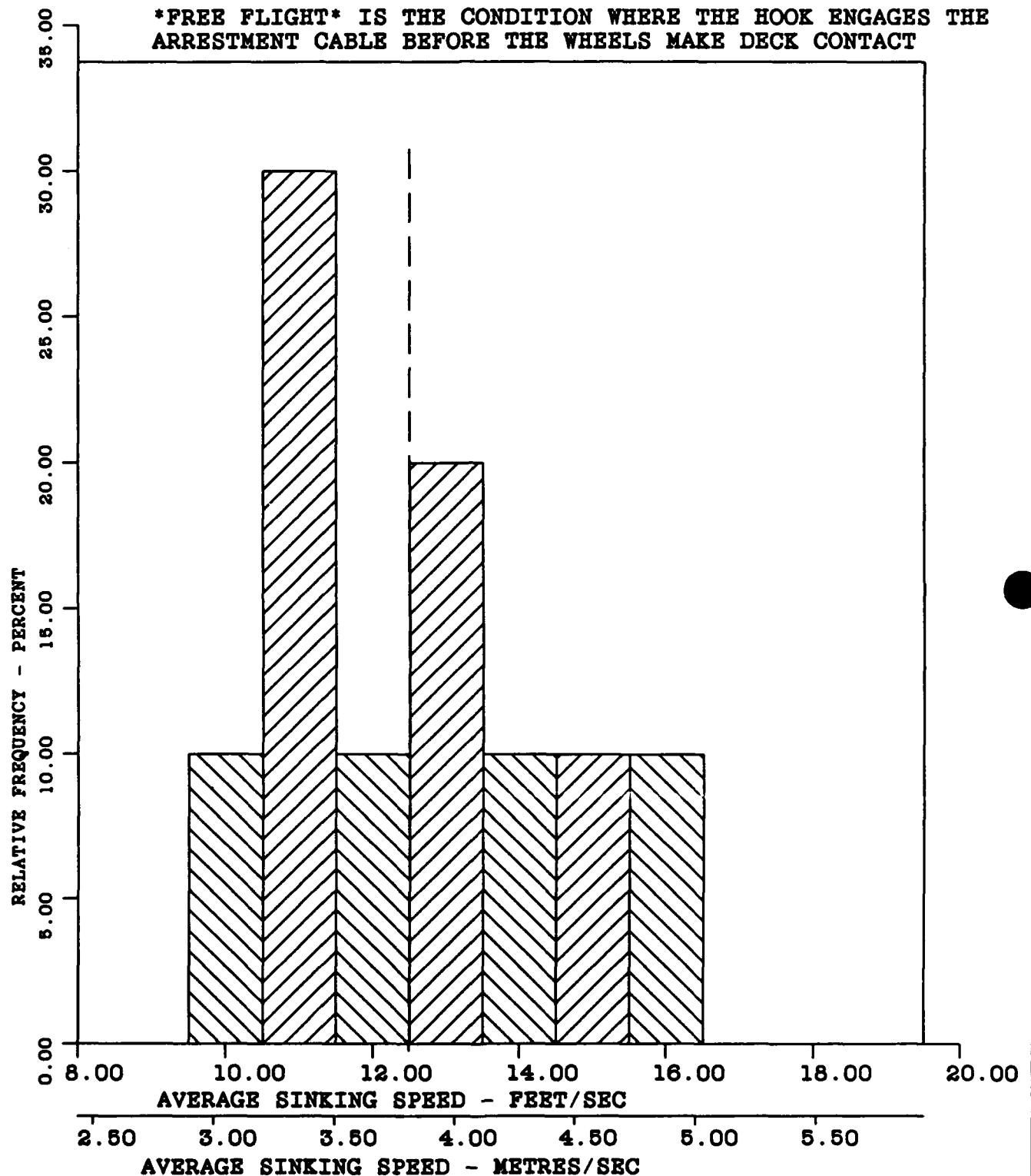


FIGURE D-15 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-10

 $\bar{X}$ -12.49 FEET/SEC (3.80 METRES/SEC)

A3-.57

S-1.90 FEET/SEC (.58 METRES/SEC)

A4-2.10

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

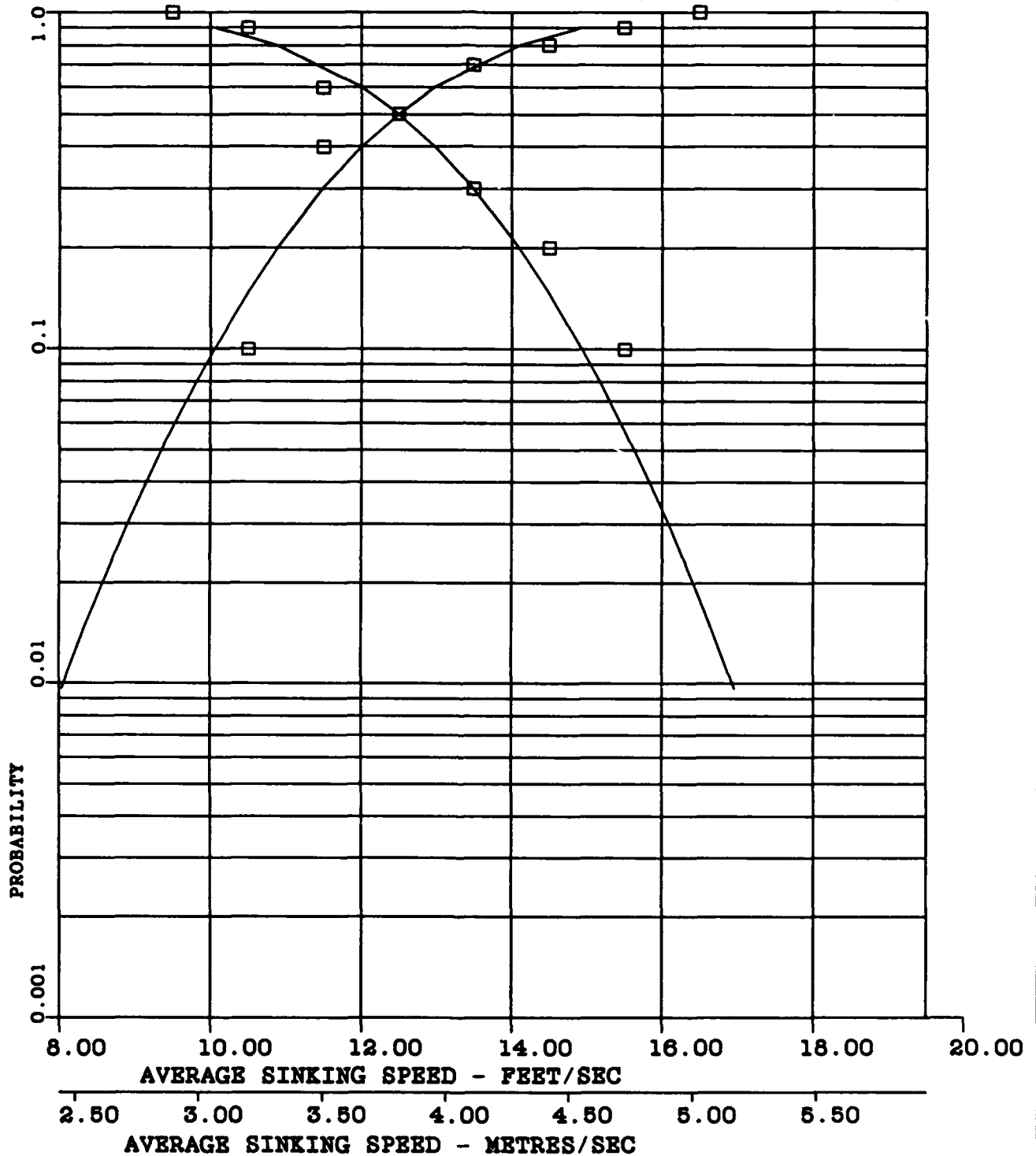


FIGURE D-16 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -1.05

S=.08

A3-.00

A4-3.55

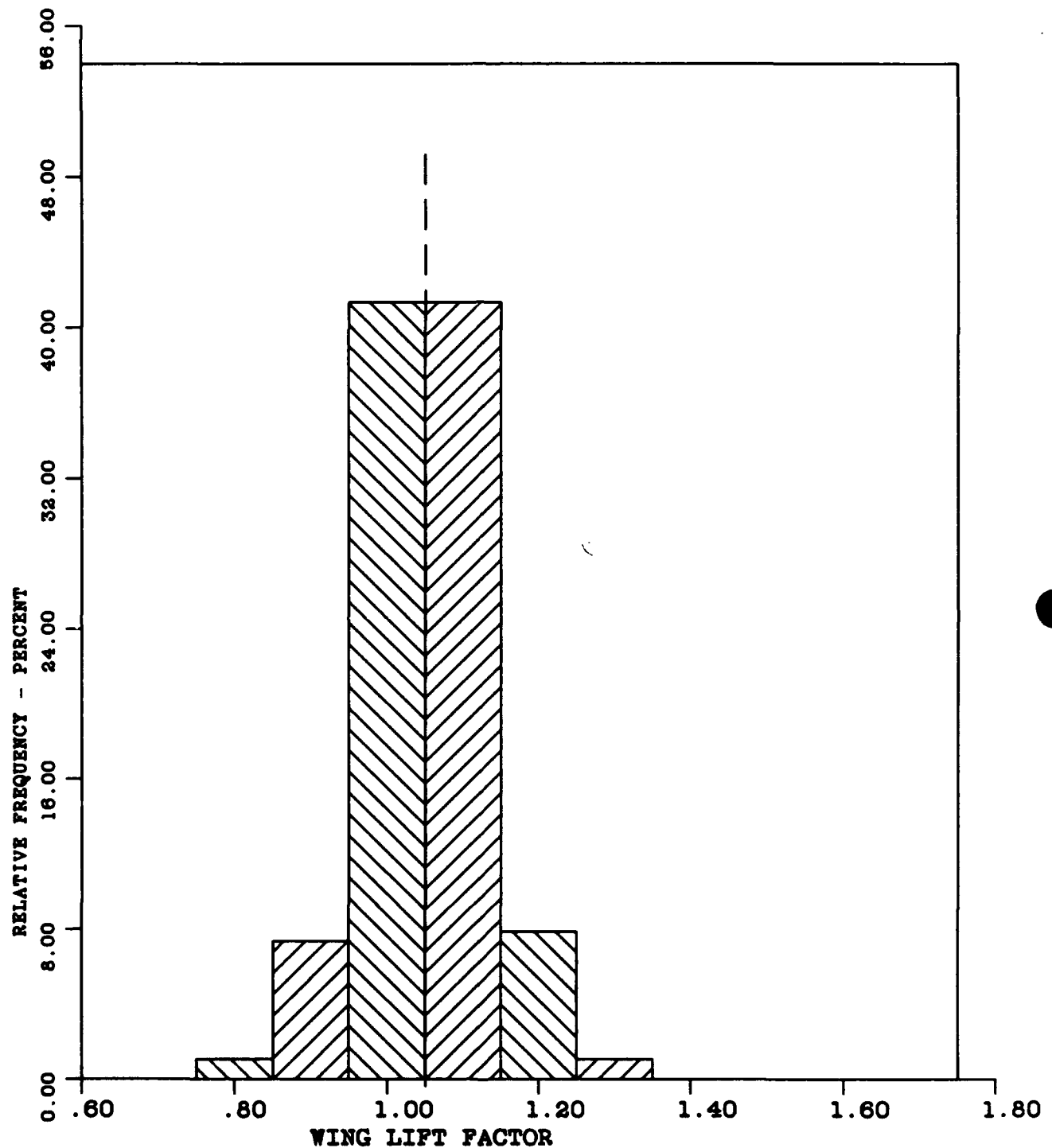


FIGURE D-17 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -1.05

S-.08

CURVE FITTED - NORMAL

A3-.00

A4-3.55

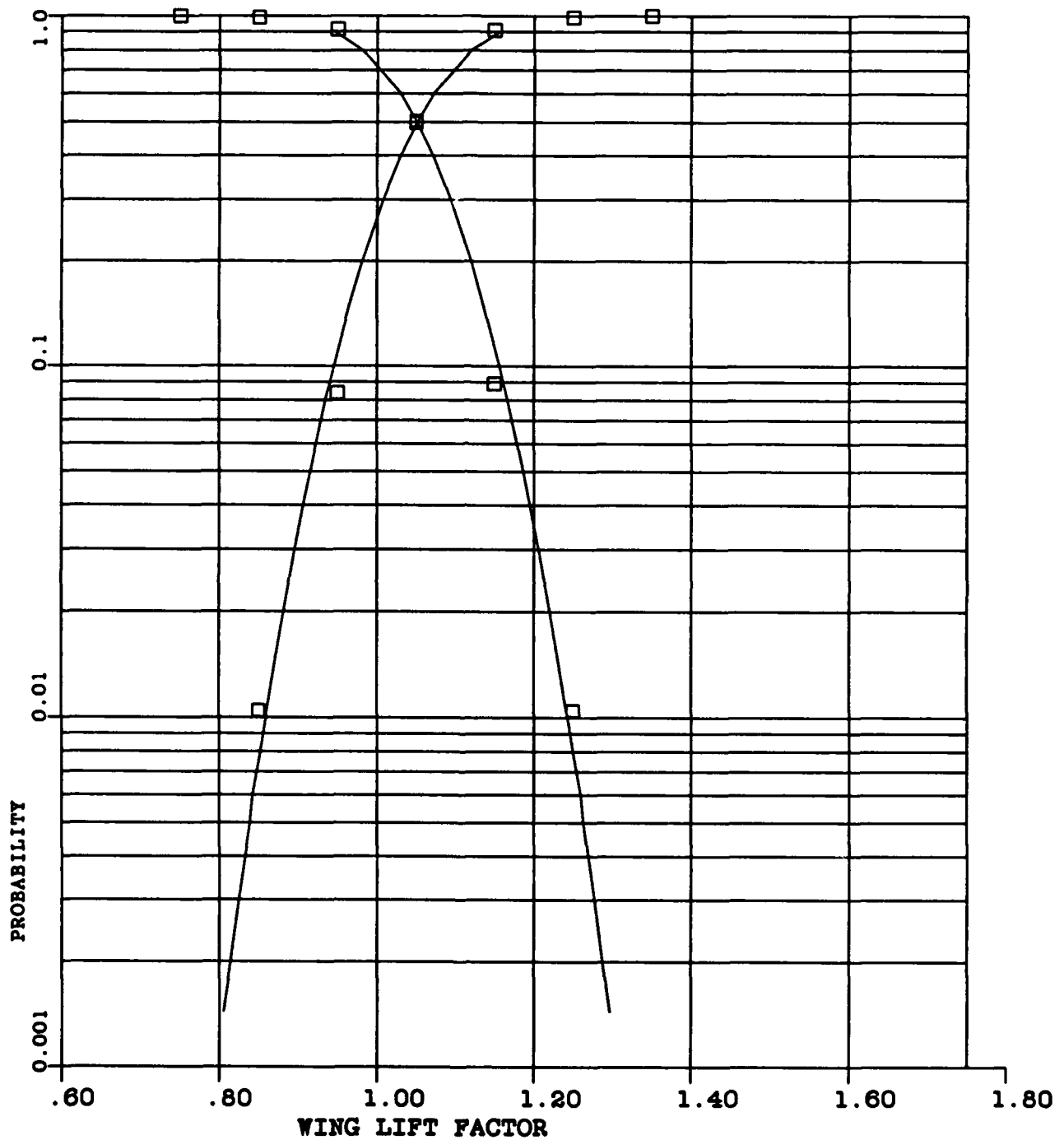


FIGURE D-18 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-10

 $\bar{X}$ -1.03

S-.06

A3--.36

A4-2.29

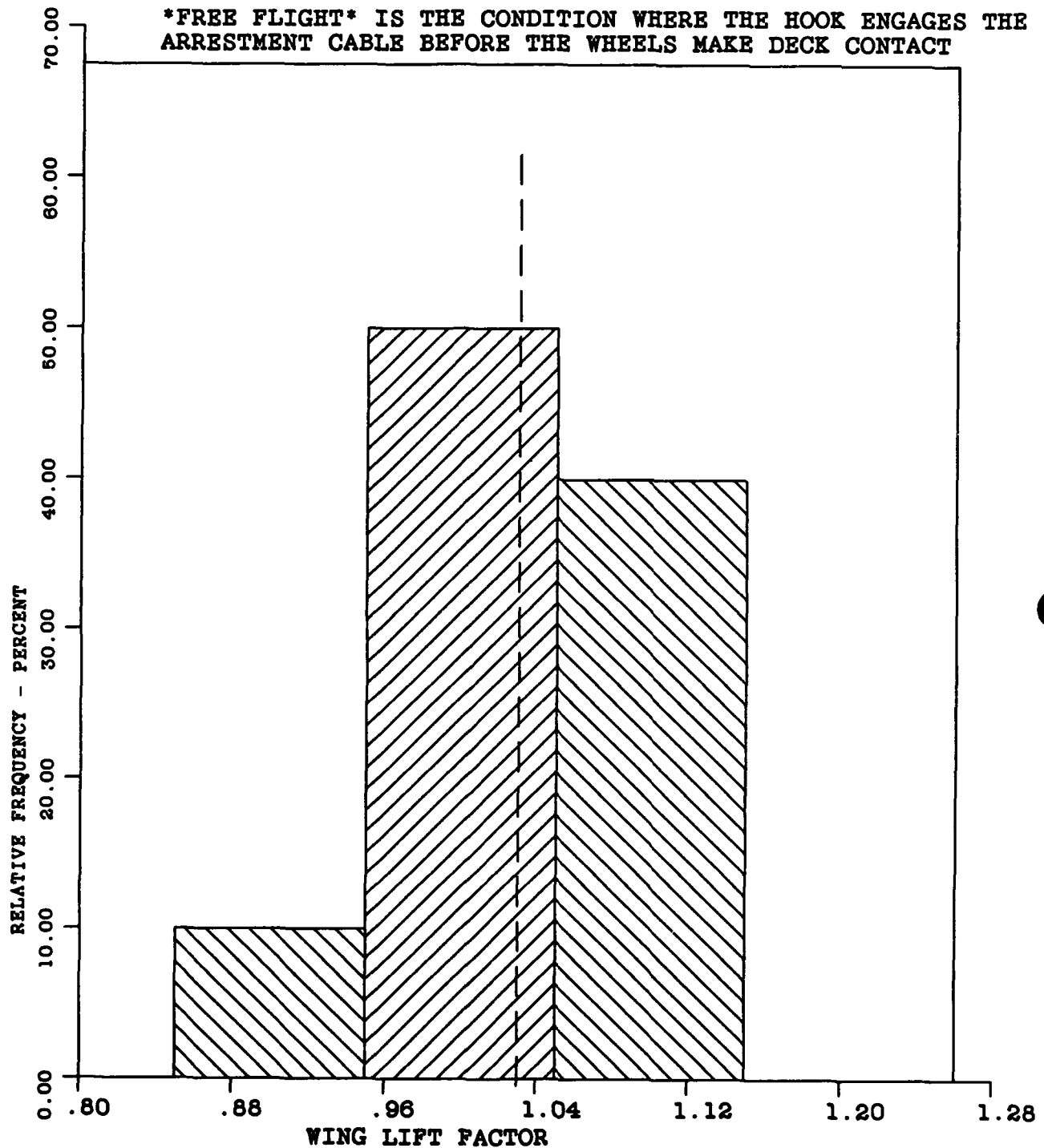


FIGURE D-19 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-10

 $\bar{X}$ -1.03

A3--.36

S=.06

A4-2.29

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

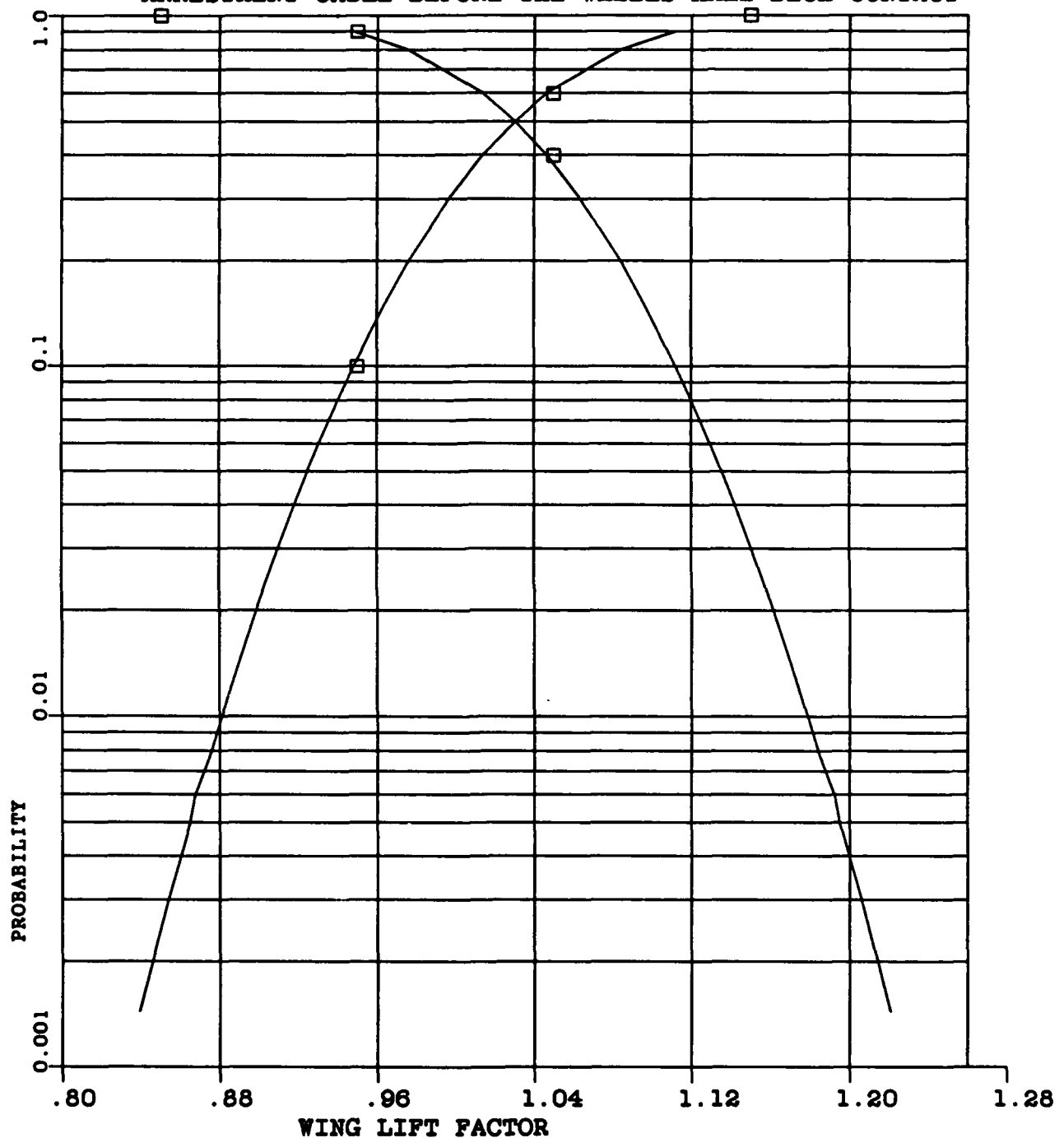


FIGURE D-20 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-187

 $\bar{X}$ -4.86 DEGREES (.084 RADIANS)

A3--1.77

S-.90 DEGREES (.015 RADIANS)

A4-13.58

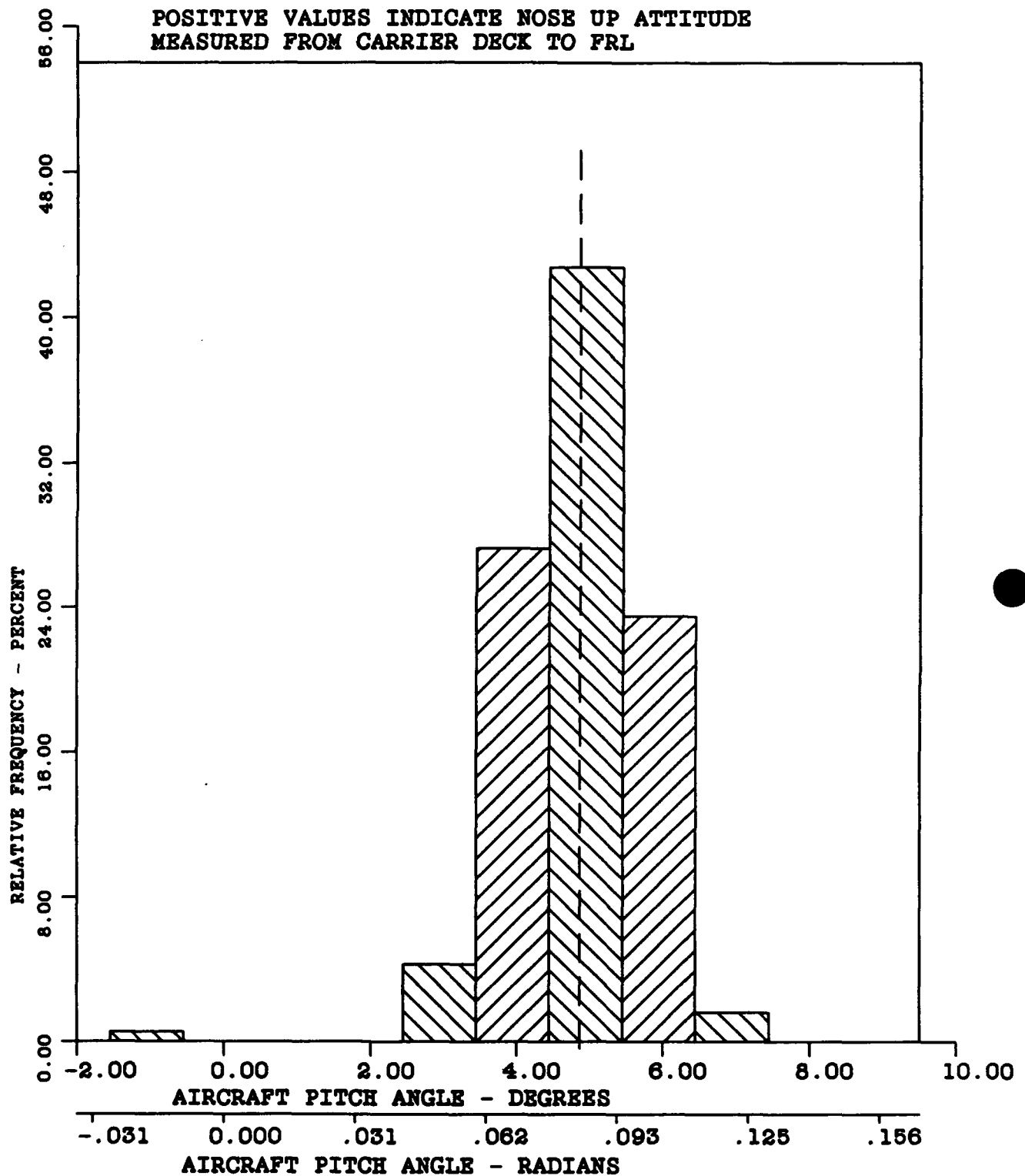


FIGURE D-21 FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-187

 $\bar{X}$ -4.86 DEGREES (.084 RADIANS)

A3--1.77

S-.90 DEGREES (.015 RADIANS)

A4-13.58

CURVE FITTED - PEARSON TYPE III

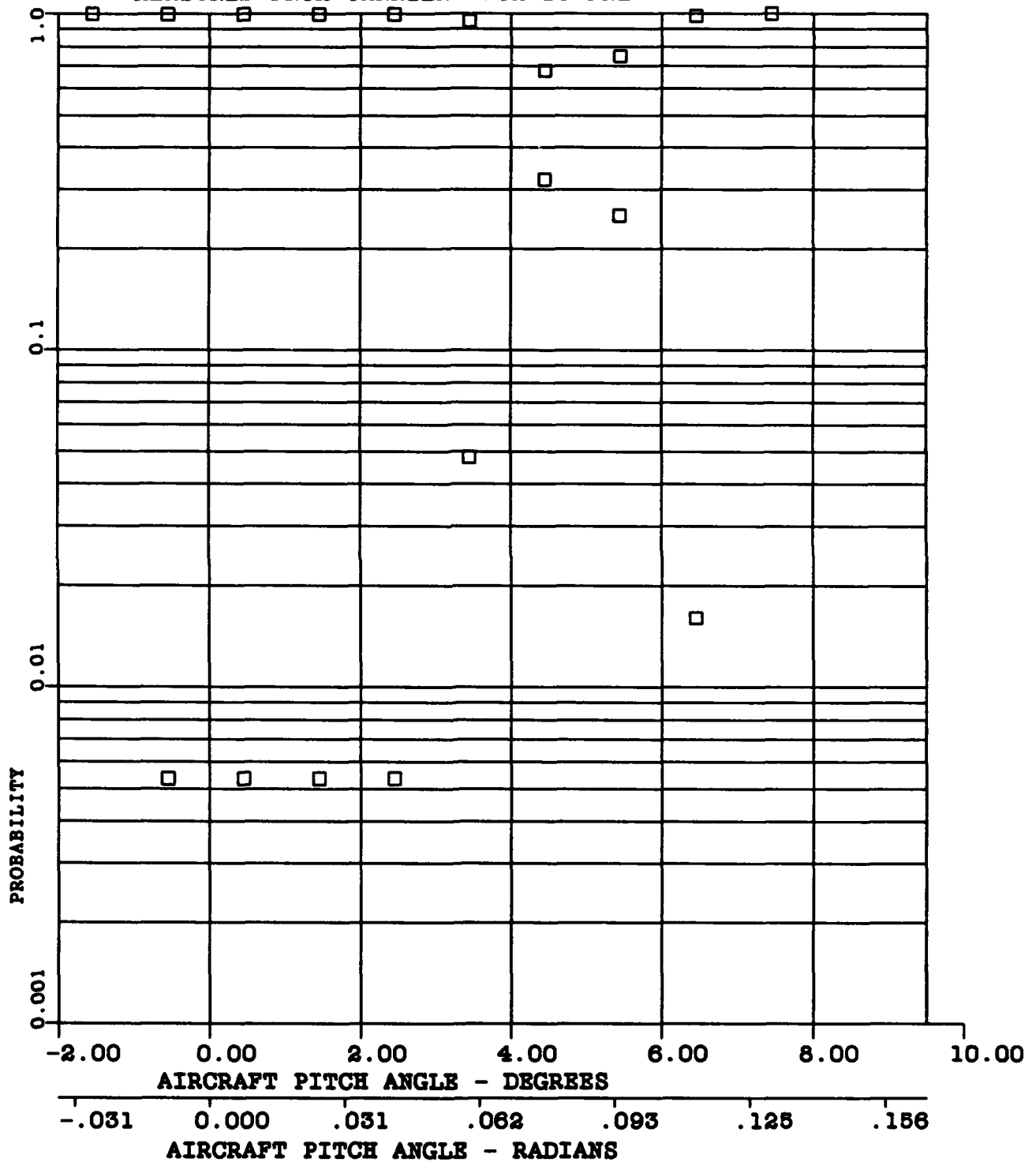
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE D-22 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -4.65 DEGREES (.081 RADIANS)

A3--.22

S-1.05 DEGREES (.018 RADIANS)

A4-3.19

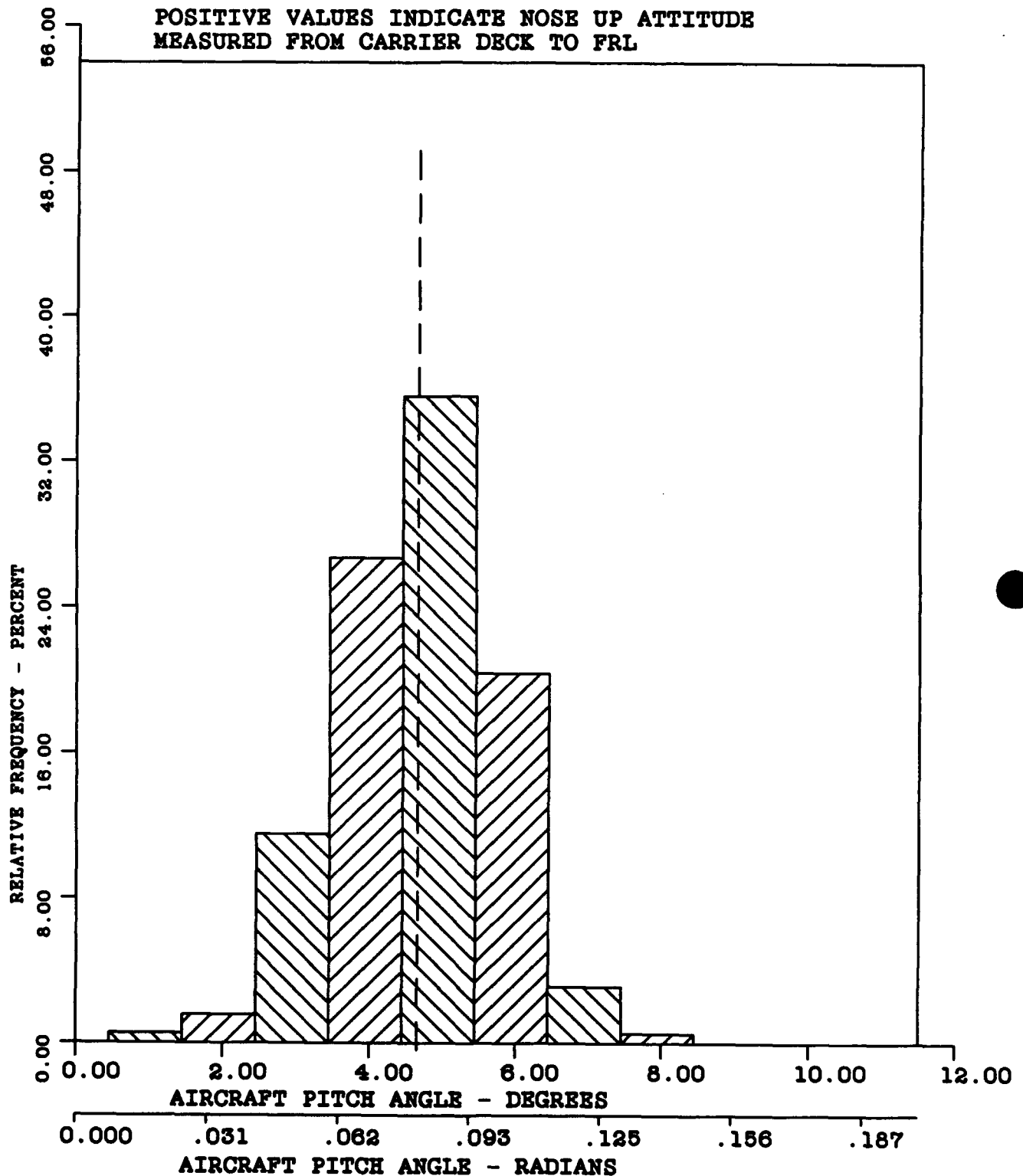


FIGURE D-23 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -4.65 DEGREES (.081 RADIANS)

A3--.22

S-1.05 DEGREES (.018 RADIANS)

A4-3.19

CURVE FITTED - NORMAL

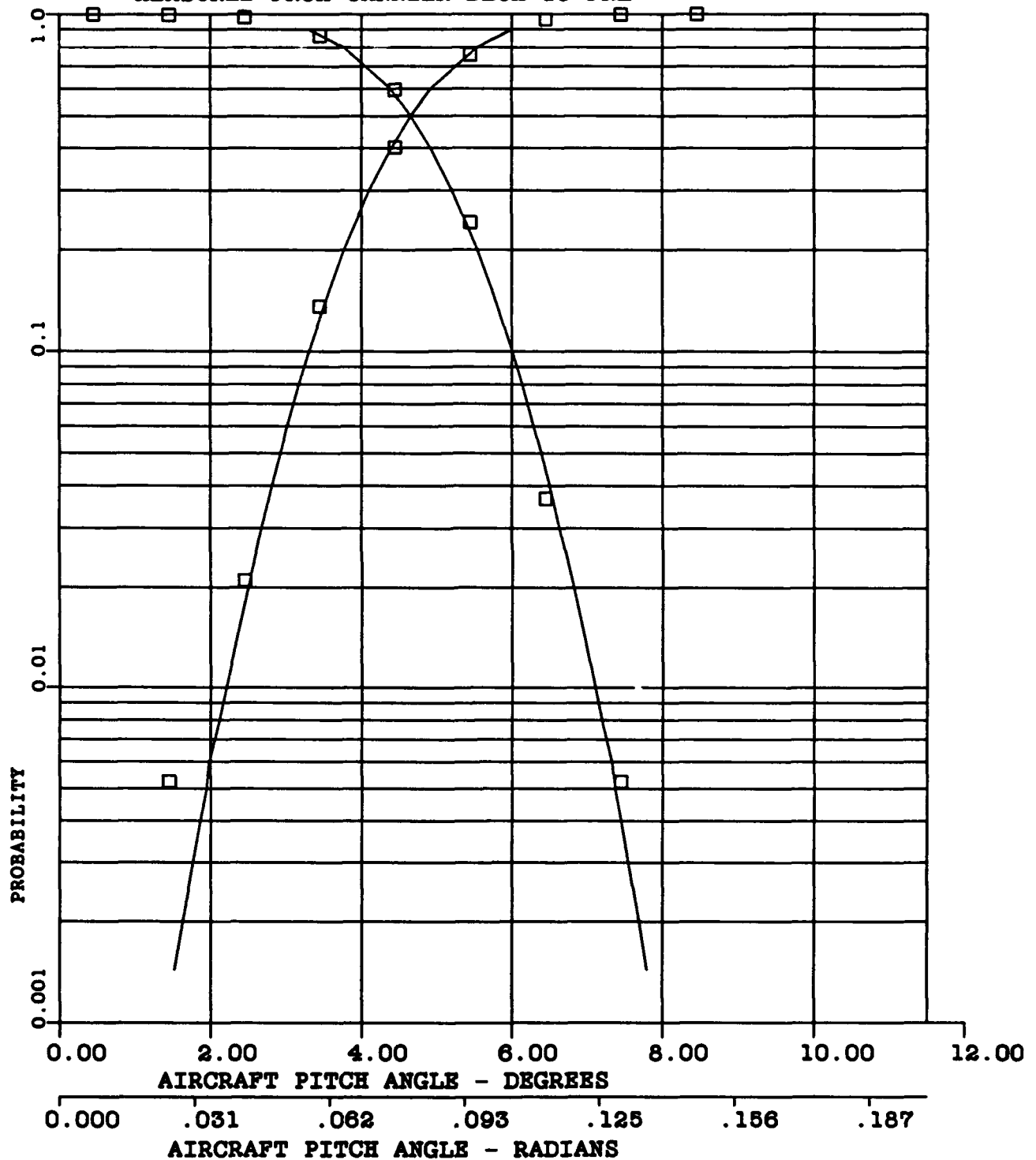
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE D-24 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-10

 $\bar{X}$ -5.43 DEGREES (.094 RADIANS)

A3--1.38

S-.52 DEGREES (.009 RADIANS)

A4-4.24

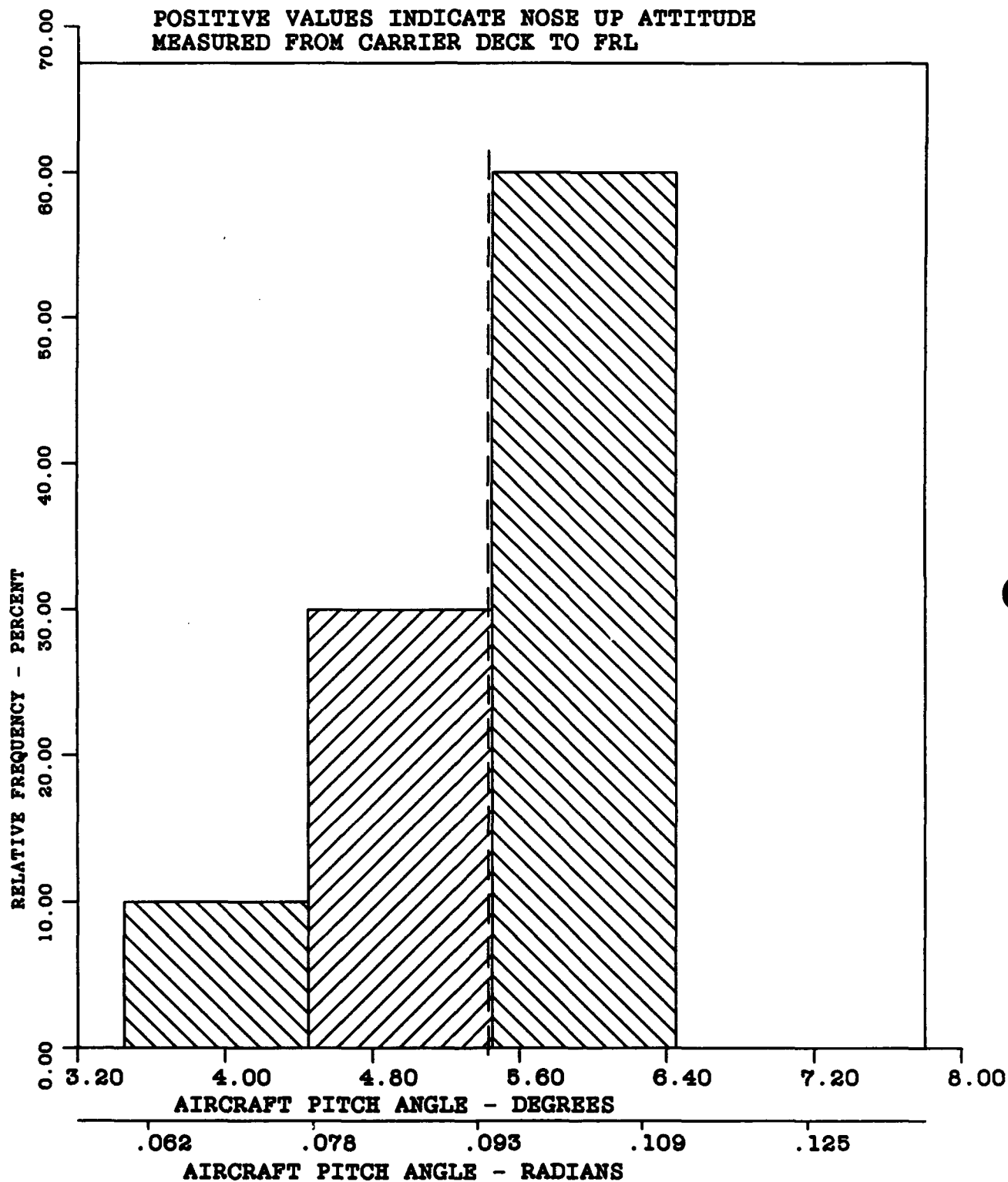


FIGURE D-25 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-10

 $\bar{X}$ -5.43 DEGREES (.094 RADIANS)

A3--1.38

S-.52 DEGREES (.009 RADIANS)

A4-4.24

CURVE FITTED - NORMAL

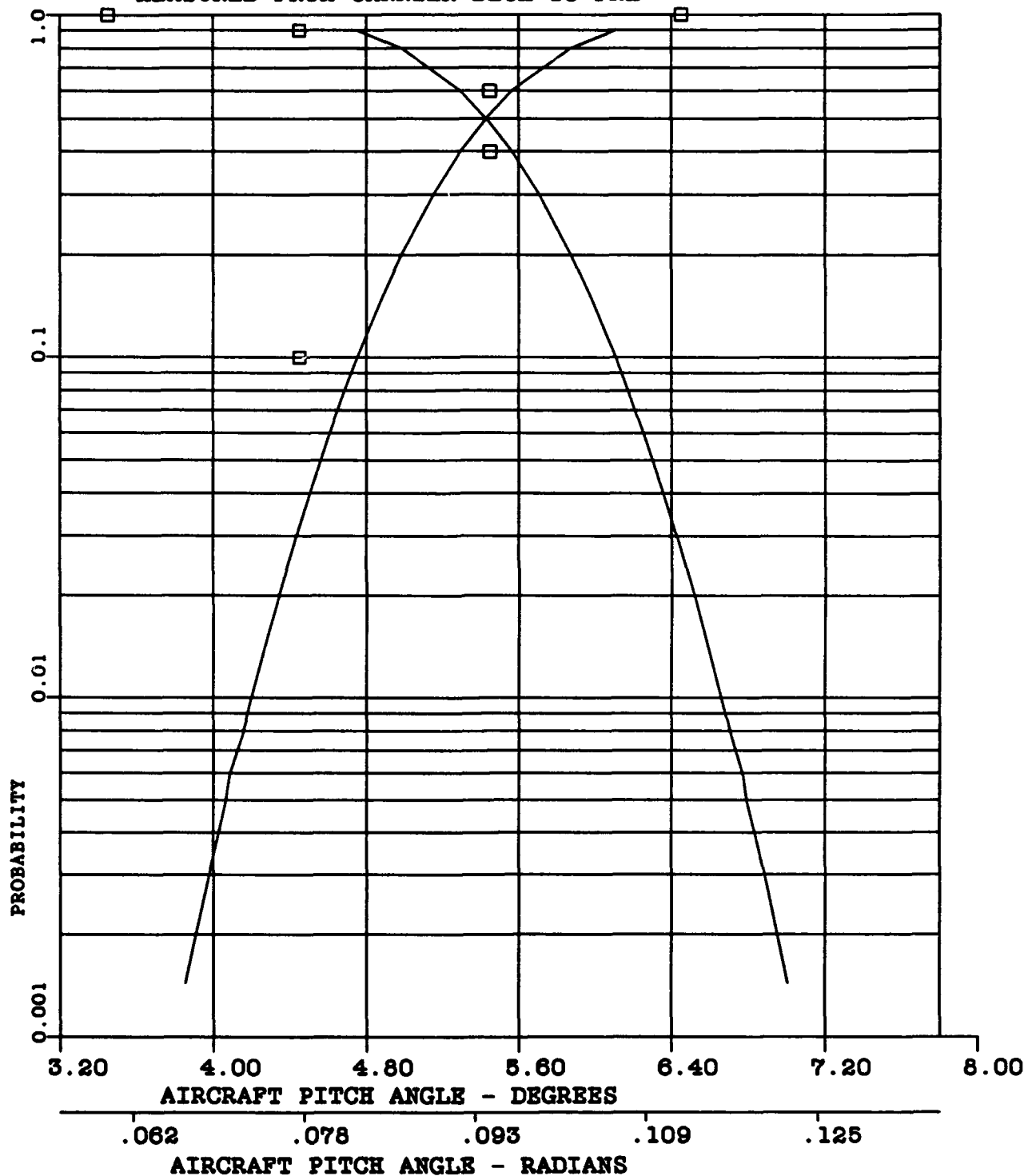
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE D-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-187

 $\bar{X}$ -.41 DEGREES (.007 RADIANS)

A3-.12

S-3.30 DEGREES (.057 RADIANS)

A4-2.97

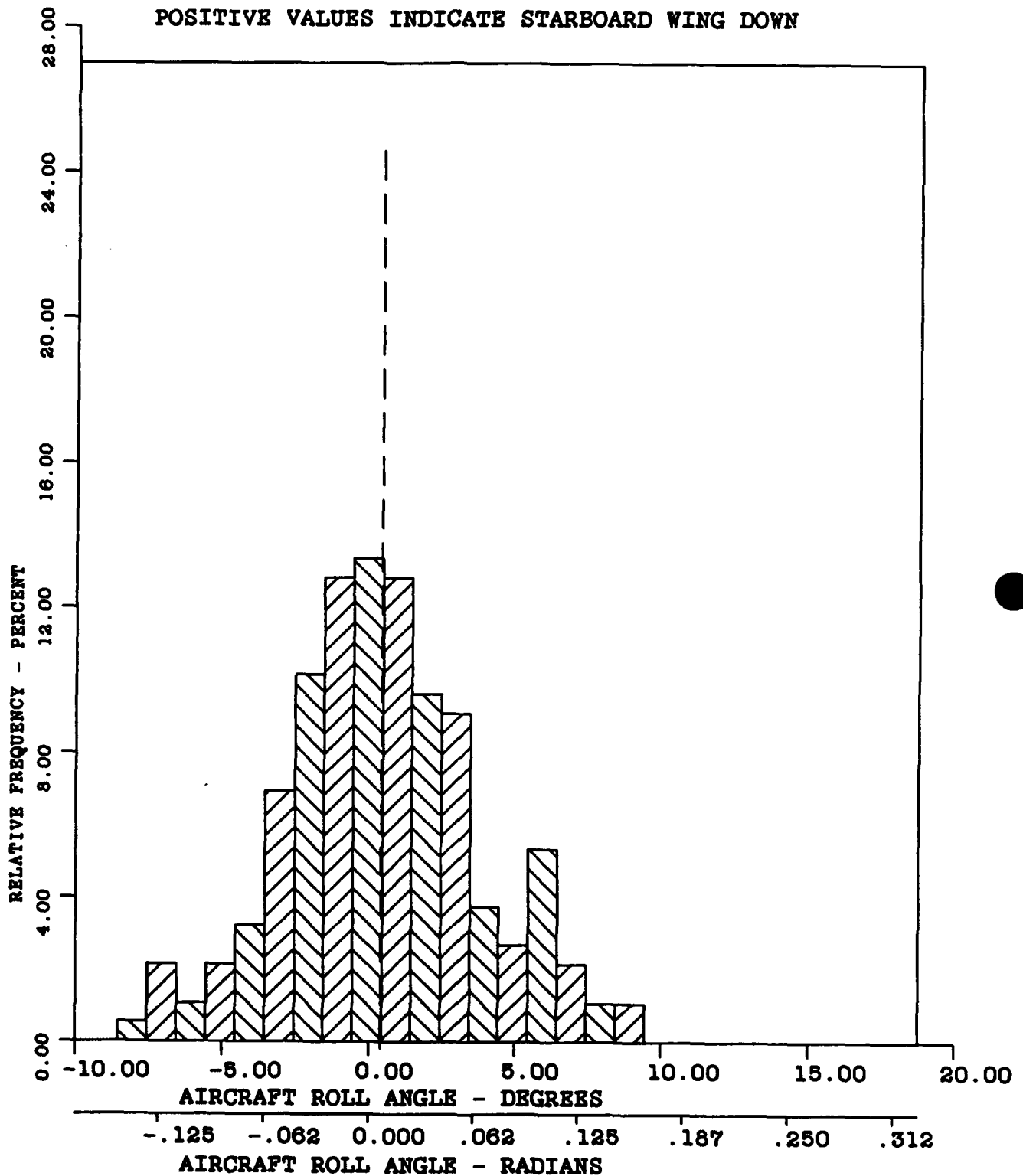


FIGURE D-27 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-187

 $\bar{X}$ -.41 DEGREES (.007 RADIANS)

A3-.12

S-3.30 DEGREES (.057 RADIANS)

A4-2.97

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

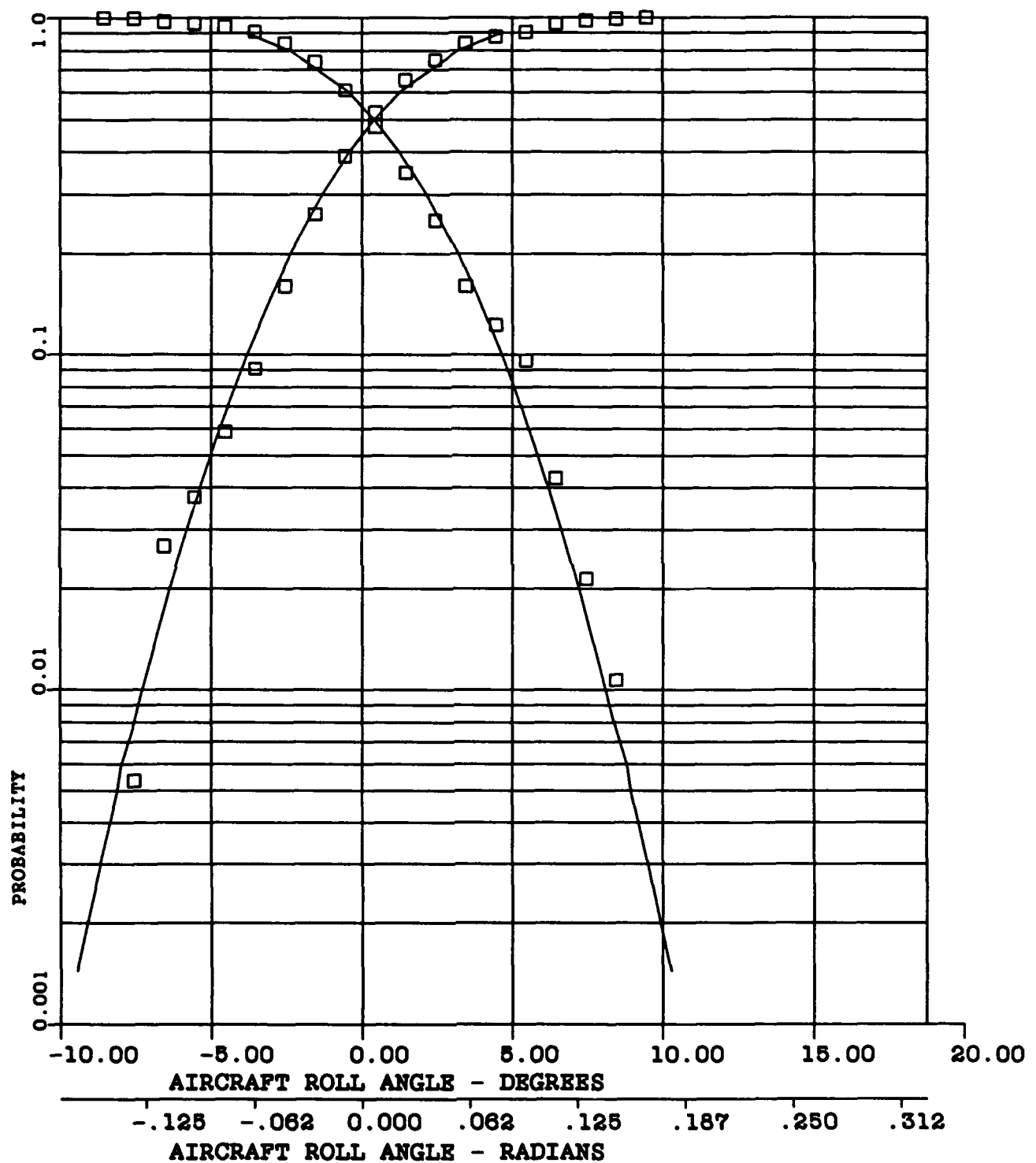


FIGURE D-28 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -.22 DEGREES (.003 RADIANS)

A3-.41

S-2.51 DEGREES (.043 RADIANS)

A4-5.03

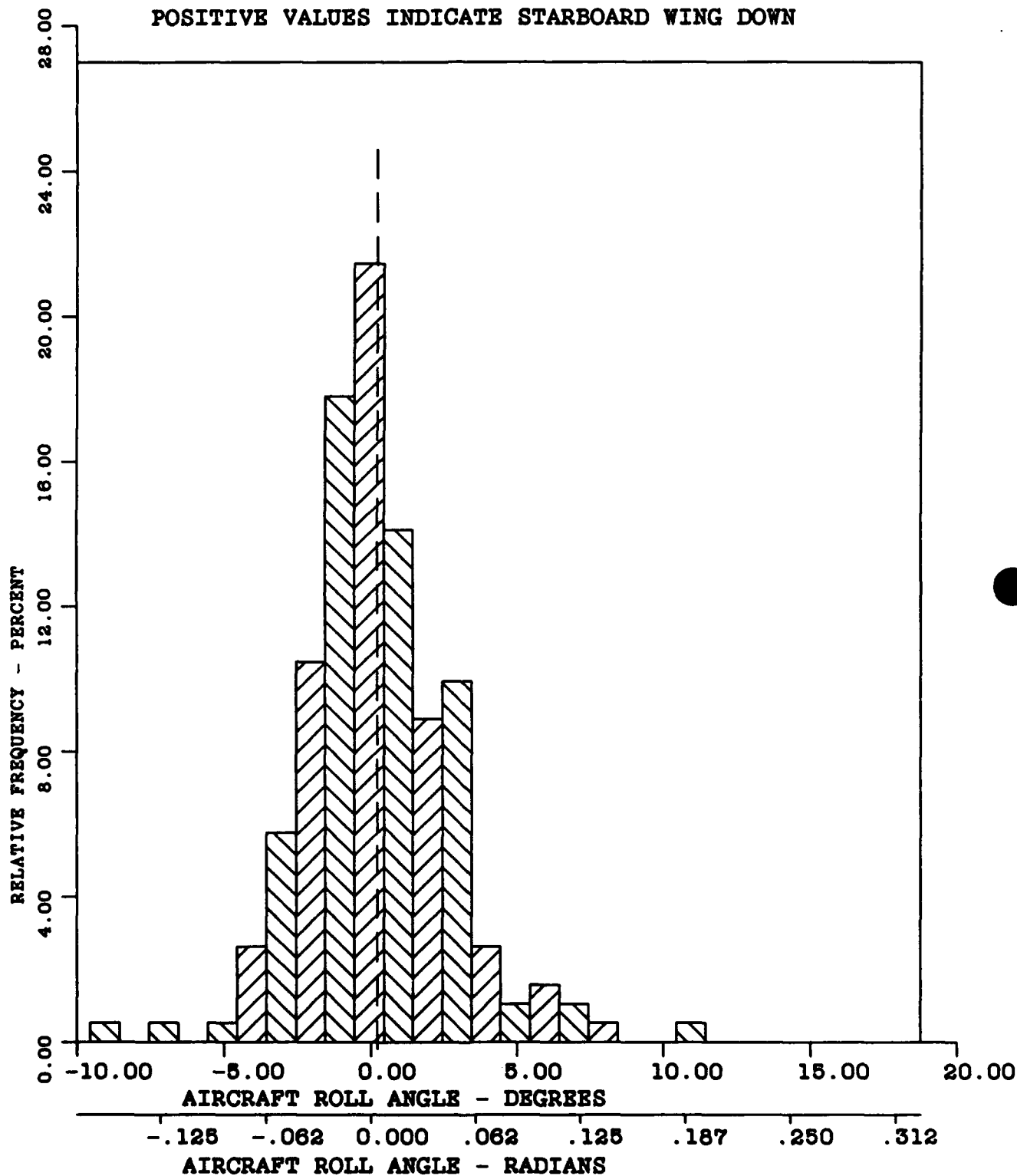


FIGURE D-29 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -.22 DEGREES (.003 RADIANS)

A3-.41

S-2.51 DEGREES (.043 RADIANS)

A4-5.03

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

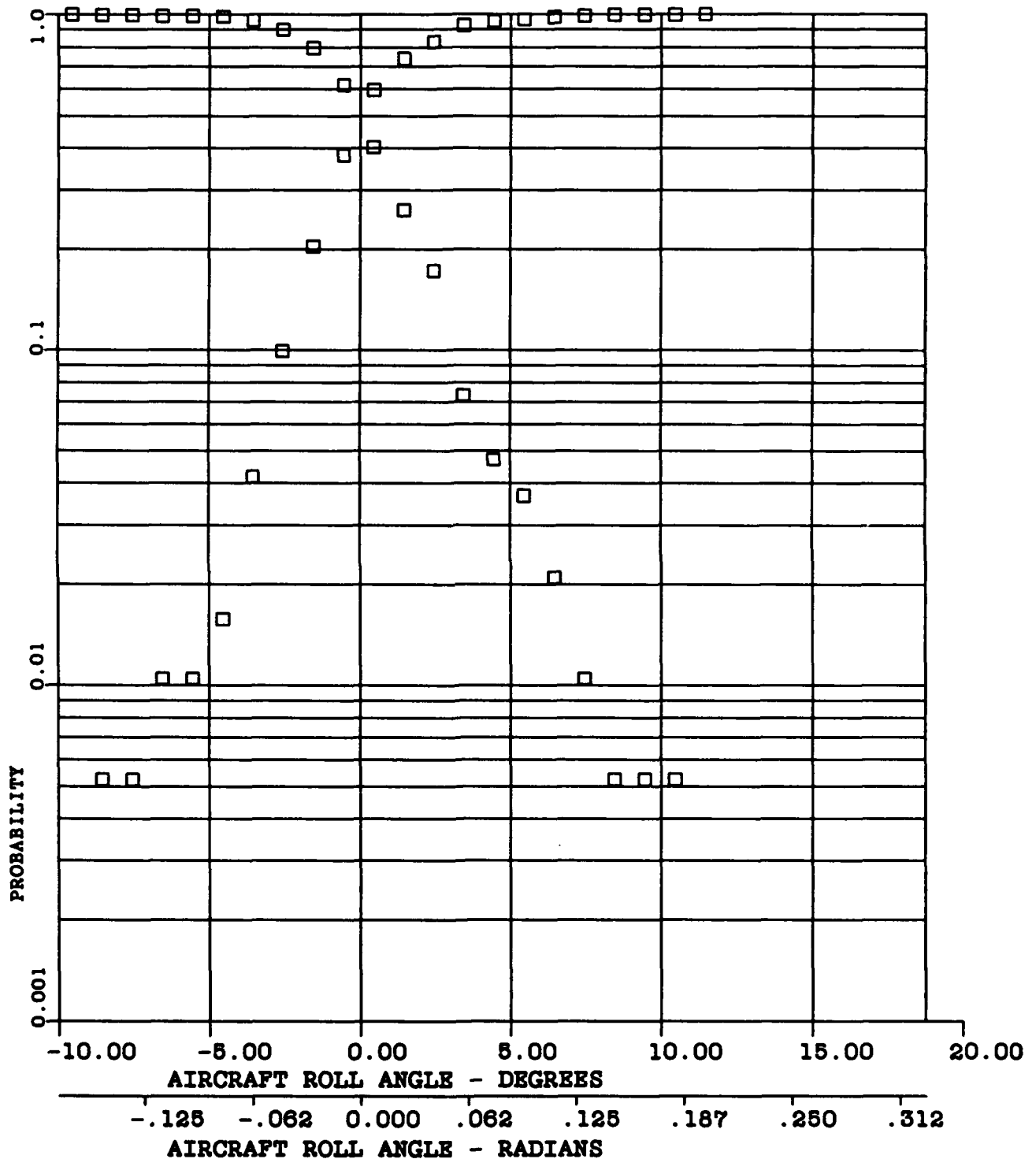


FIGURE D-30 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-10

 $\bar{X}$ -.22 DEGREES (.003 RADIANS)

A3--.50

S-1.88 DEGREES (.032 RADIANS)

A4-2.19

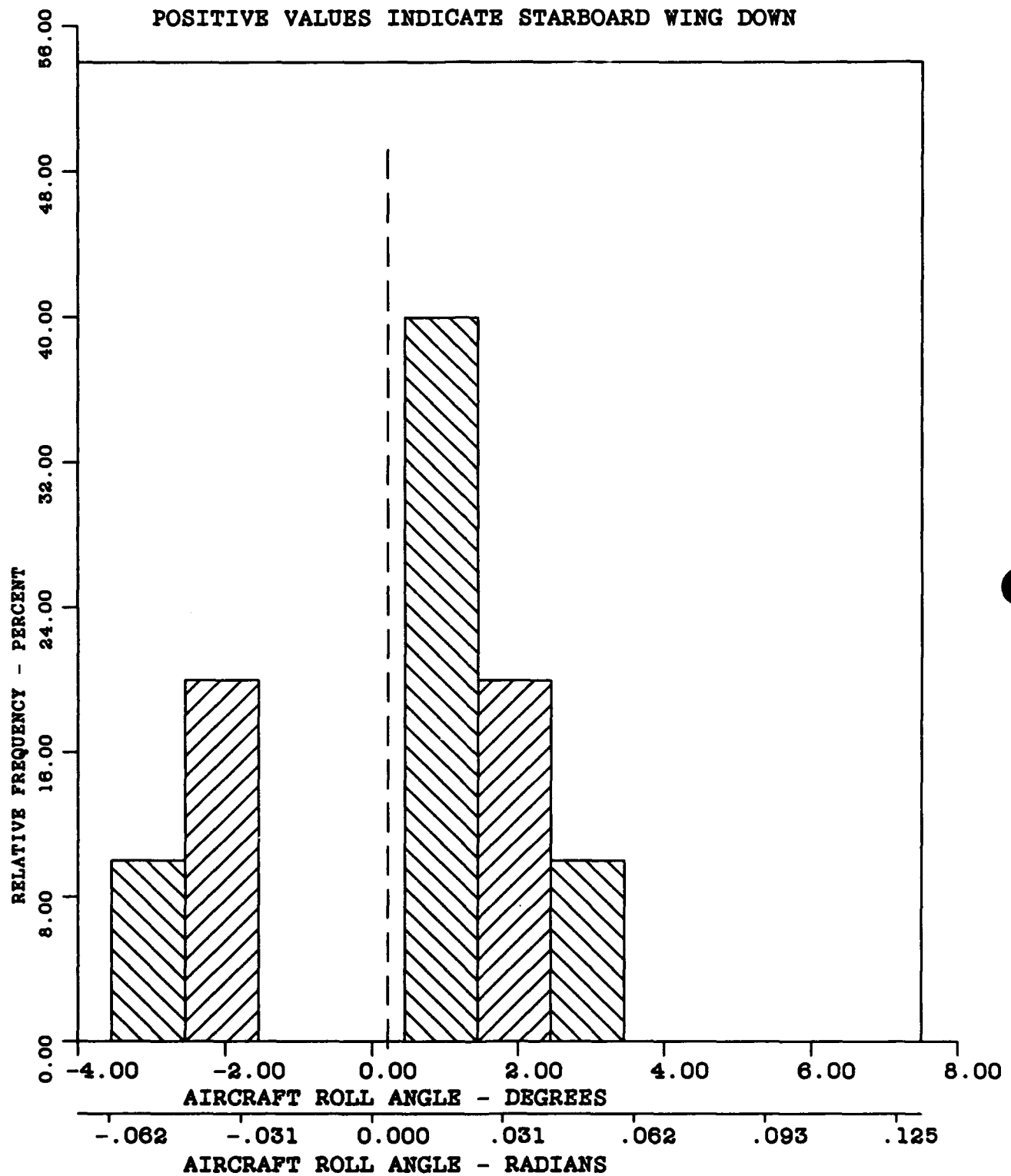


FIGURE D-31 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-10

 $\bar{X}$ -.22 DEGREES (.003 RADIANS)

A3--.50

S-1.88 DEGREES (.032 RADIANS)

A4-2.19

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

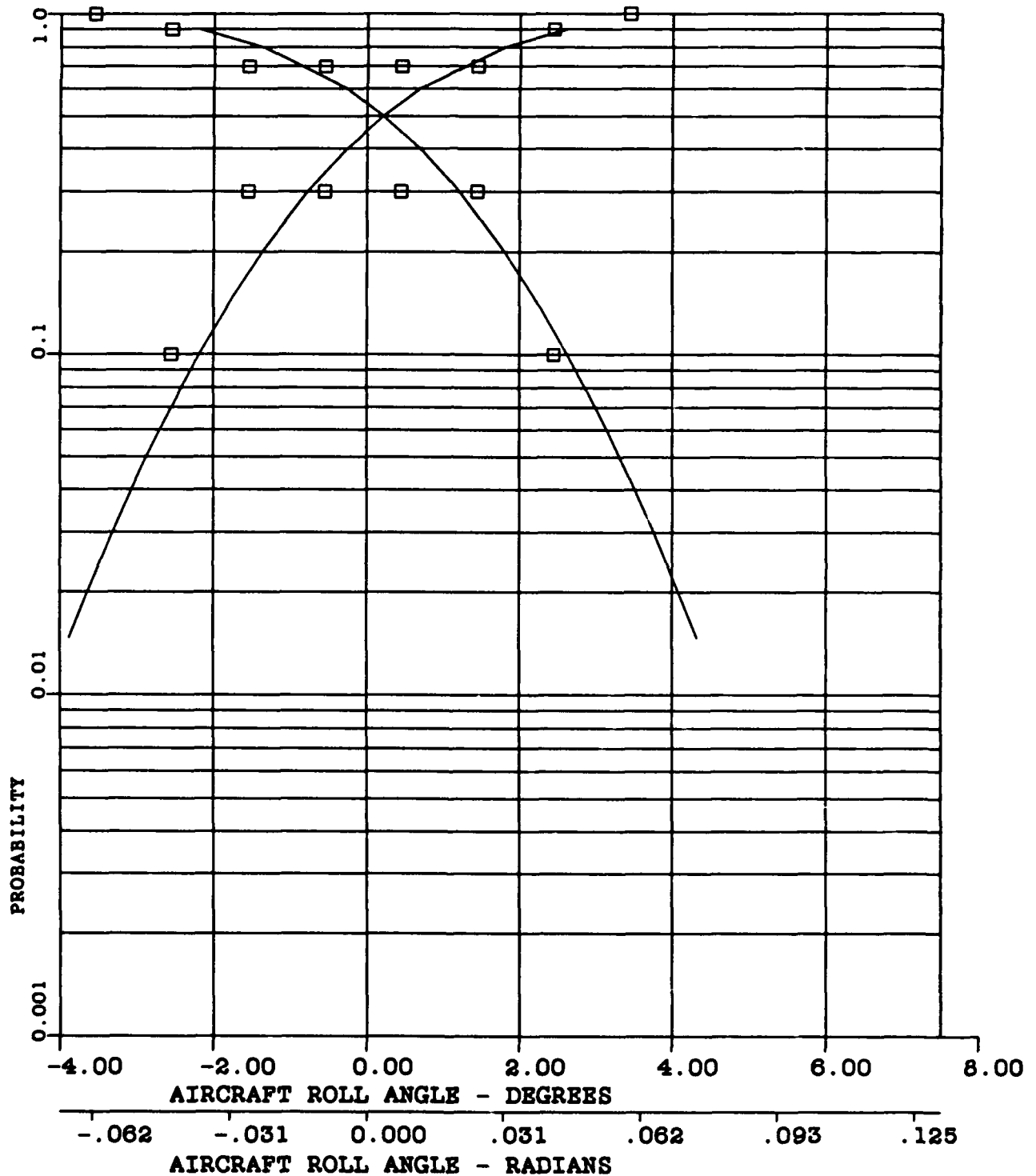


FIGURE D-32 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -252.56 FEET (76.98 METRES)

S-37.43 FEET (11.40 METRES)

A3-.11

A4-2.74

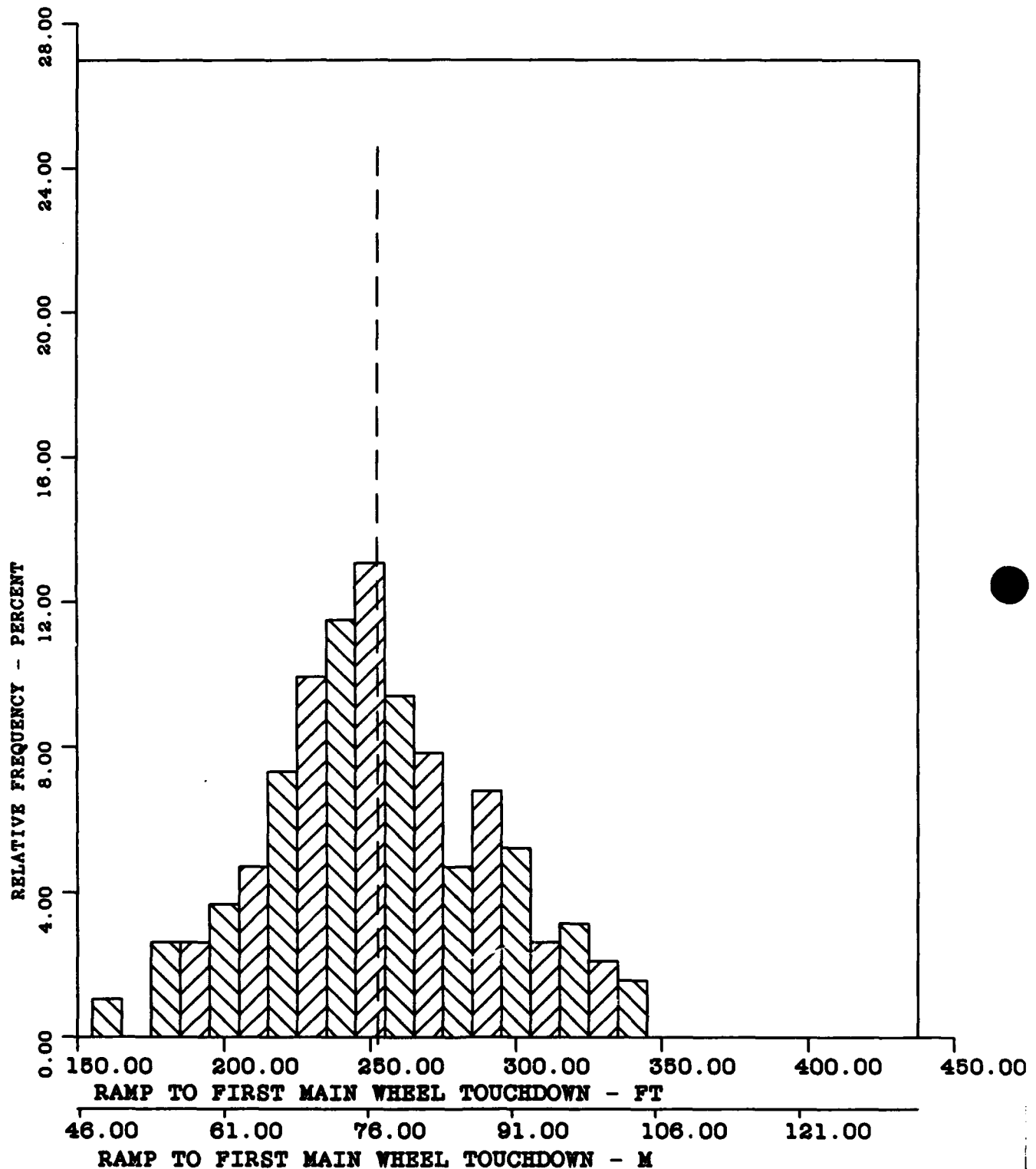


FIGURE D-33 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -252.56 FEET (76.98 METRES)

A3-.11

S-37.43 FEET (11.40 METRES)

A4-2.74

CURVE FITTED - NORMAL

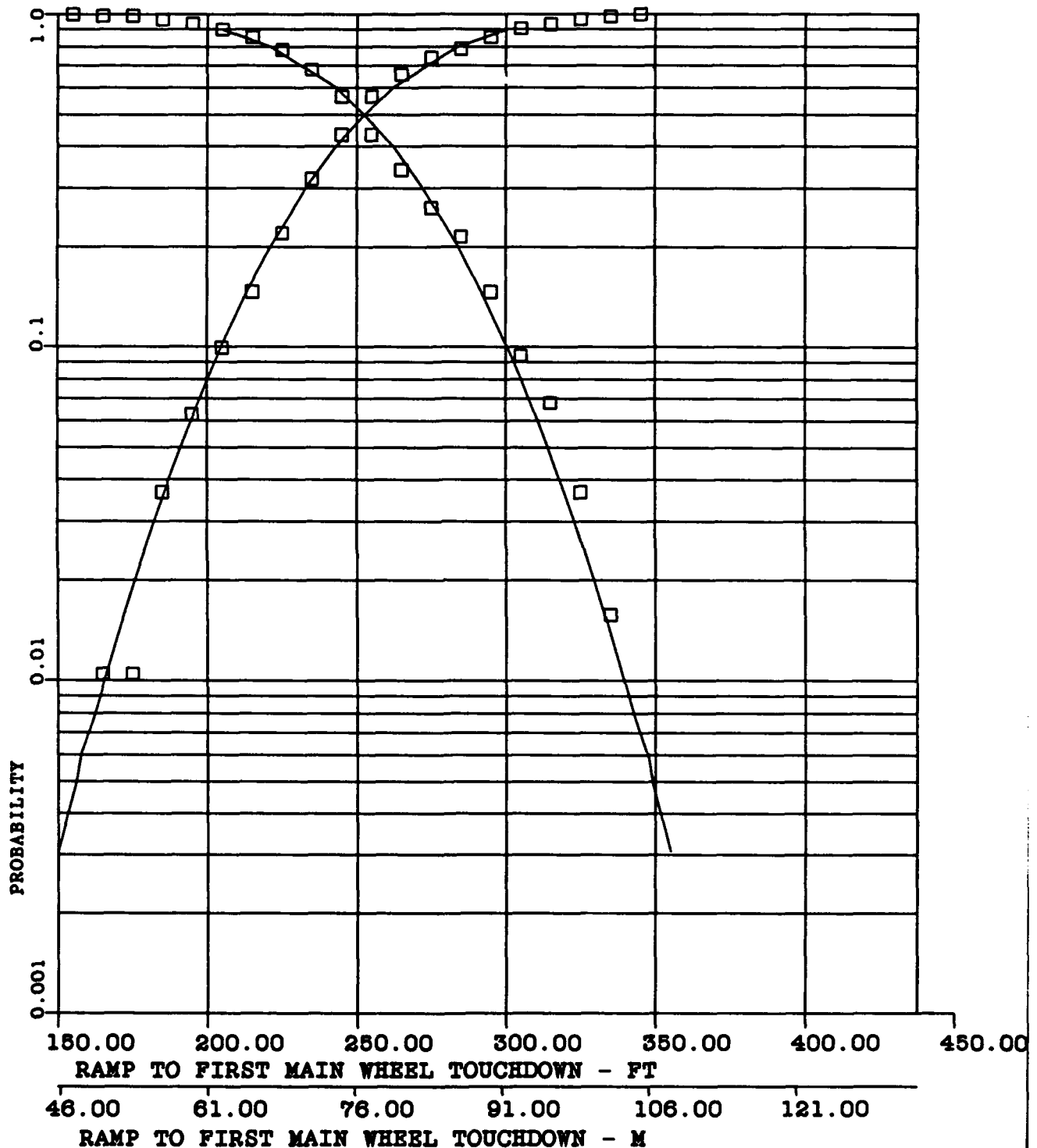


FIGURE D-34 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -9.84 FEET (-3.00 METRES)

A3--.07

S-4.22 FEET (1.28 METRES)

A4-3.68

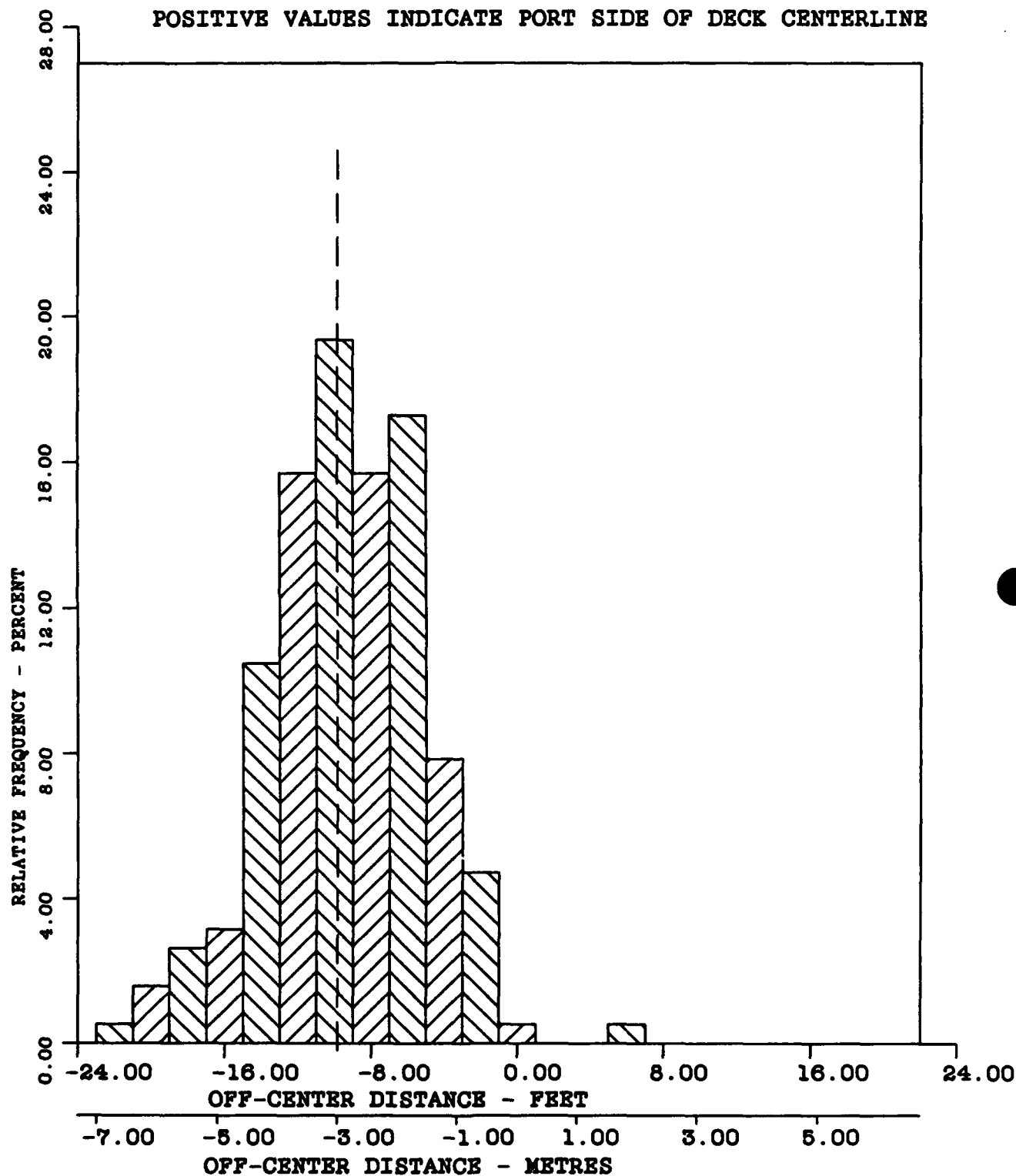


FIGURE D-35 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$  = -9.84 FEET (-3.00 METRES)

A3 = -.07

S = 4.22 FEET (1.28 METRES)

A4 = 3.68

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

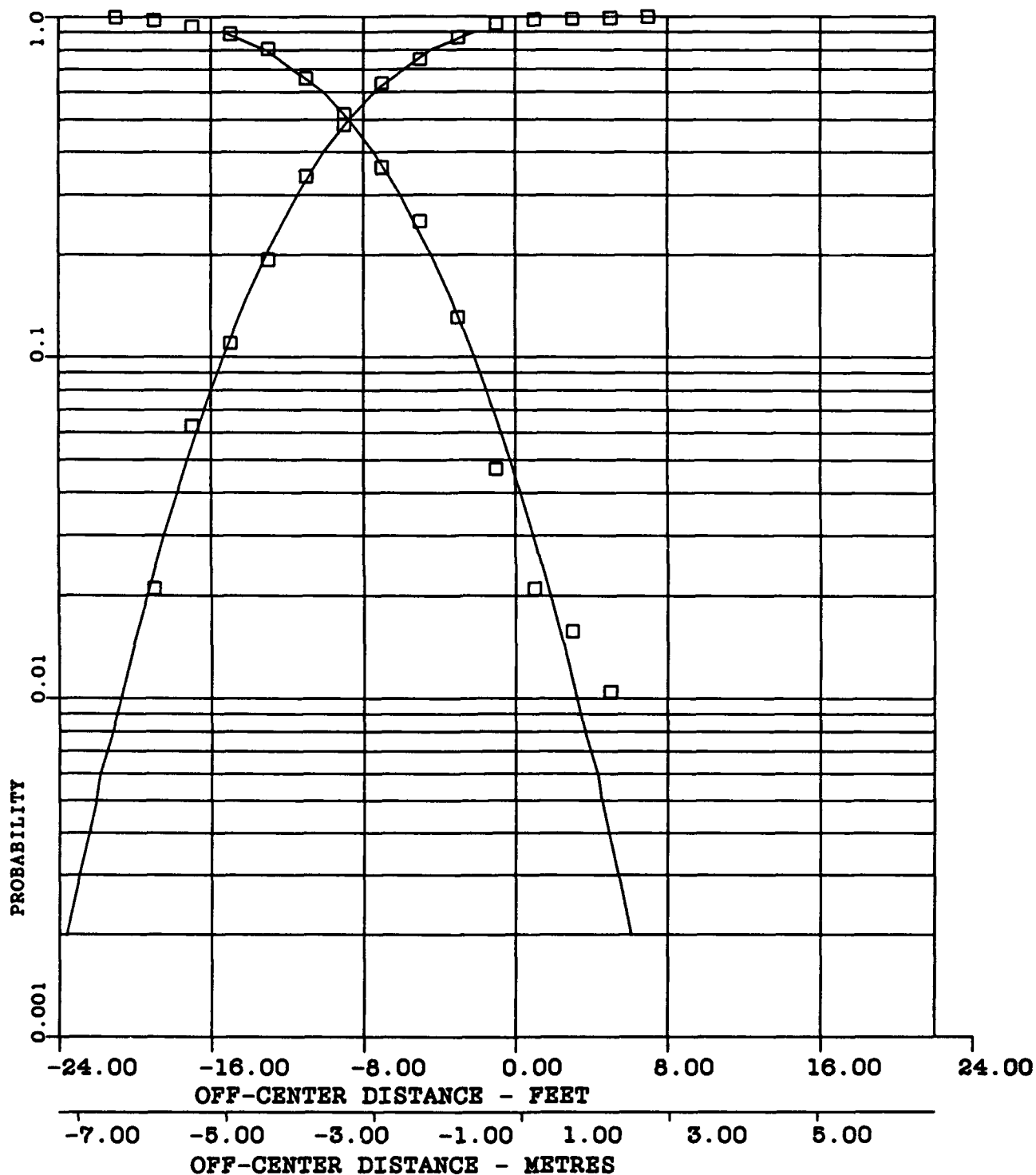


FIGURE D-36 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -2.91

S-.72

A3-.02

A4-2.13

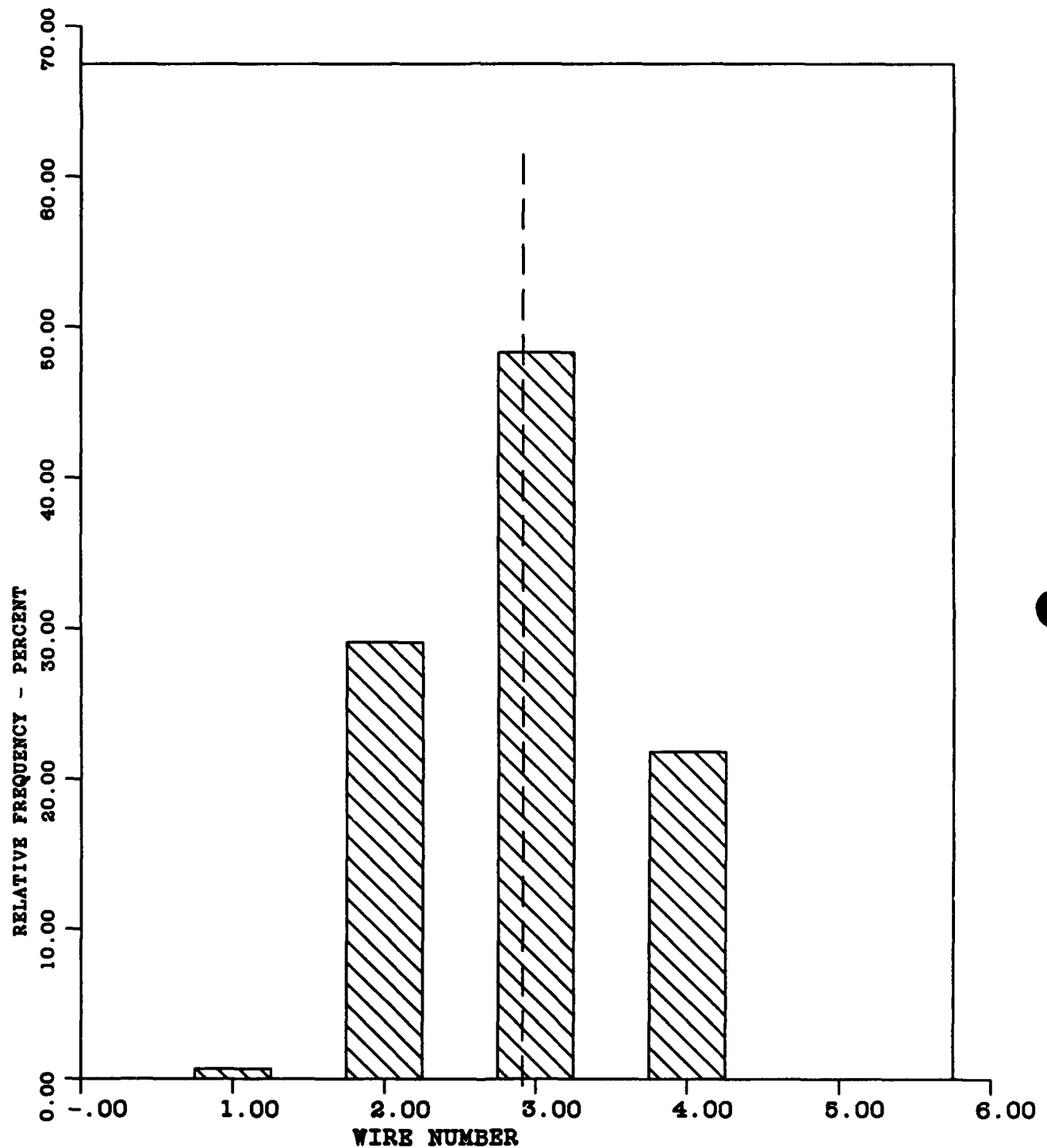


FIGURE D-37 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -3.09 DEGREES (.054 RADIANS)

A3--.04

S-.63 DEGREES (.011 RADIANS)

A4-3.76

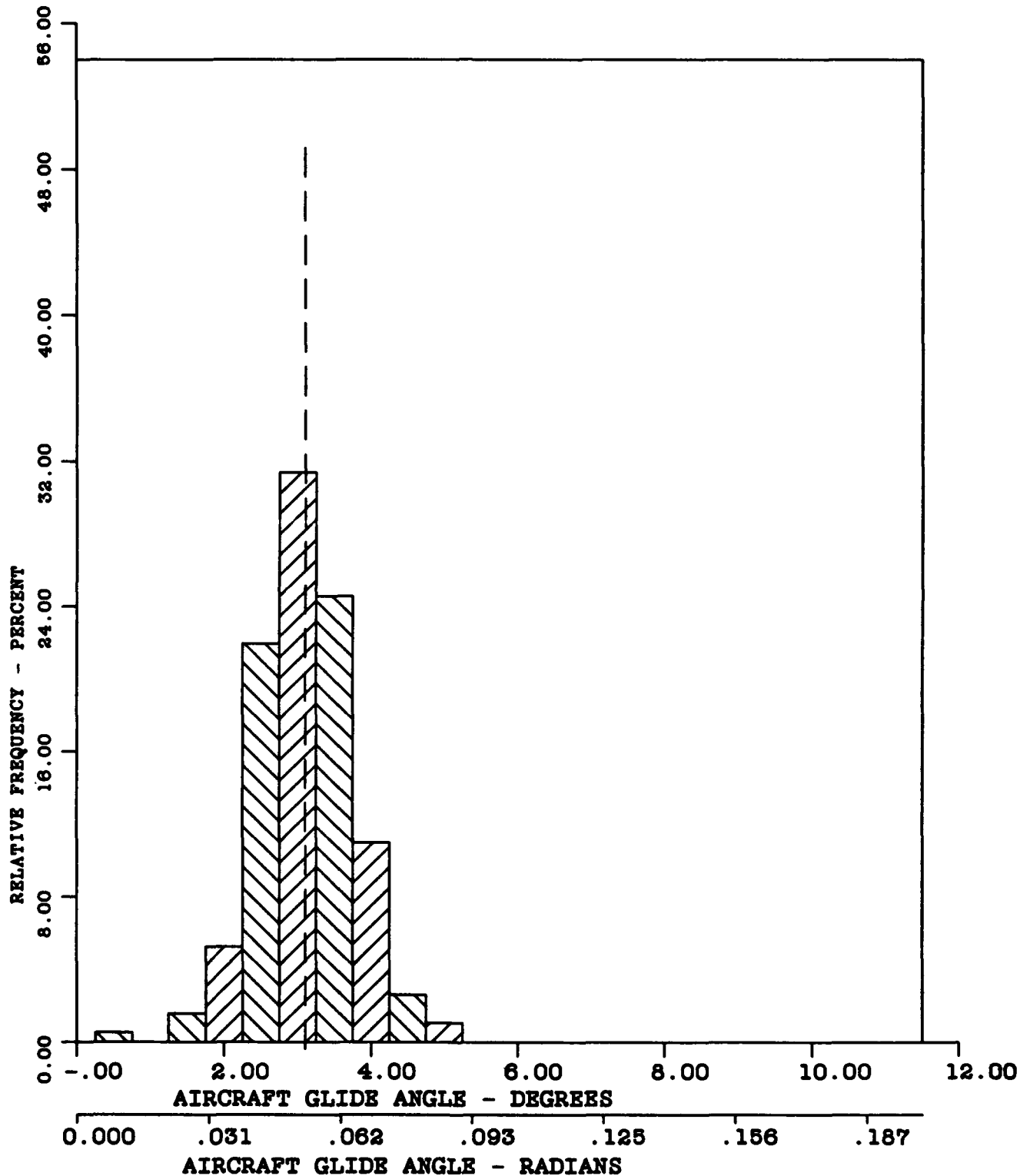


FIGURE D-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-187

 $\bar{X}$ -3.22 DEGREES (.056 RADIANS)

S-.45 DEGREES (.008 RADIANS)

A3-.32

A4-3.37

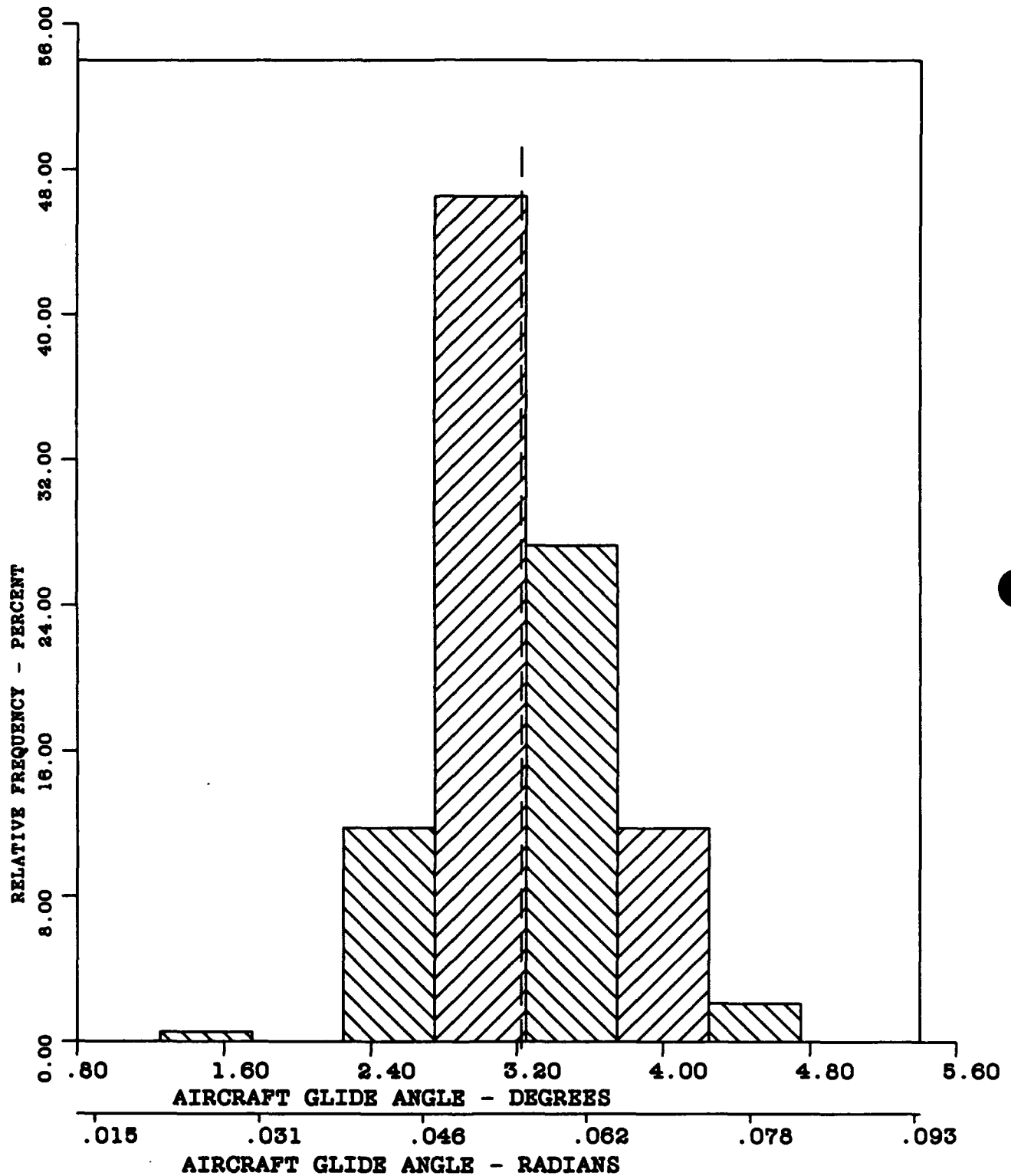


FIGURE D-39 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-187

 $\bar{X}$ -13.69 FEET (4.17 METRES)

A3-.18

S-2.74 FEET (.83 METRES)

A4-3.06

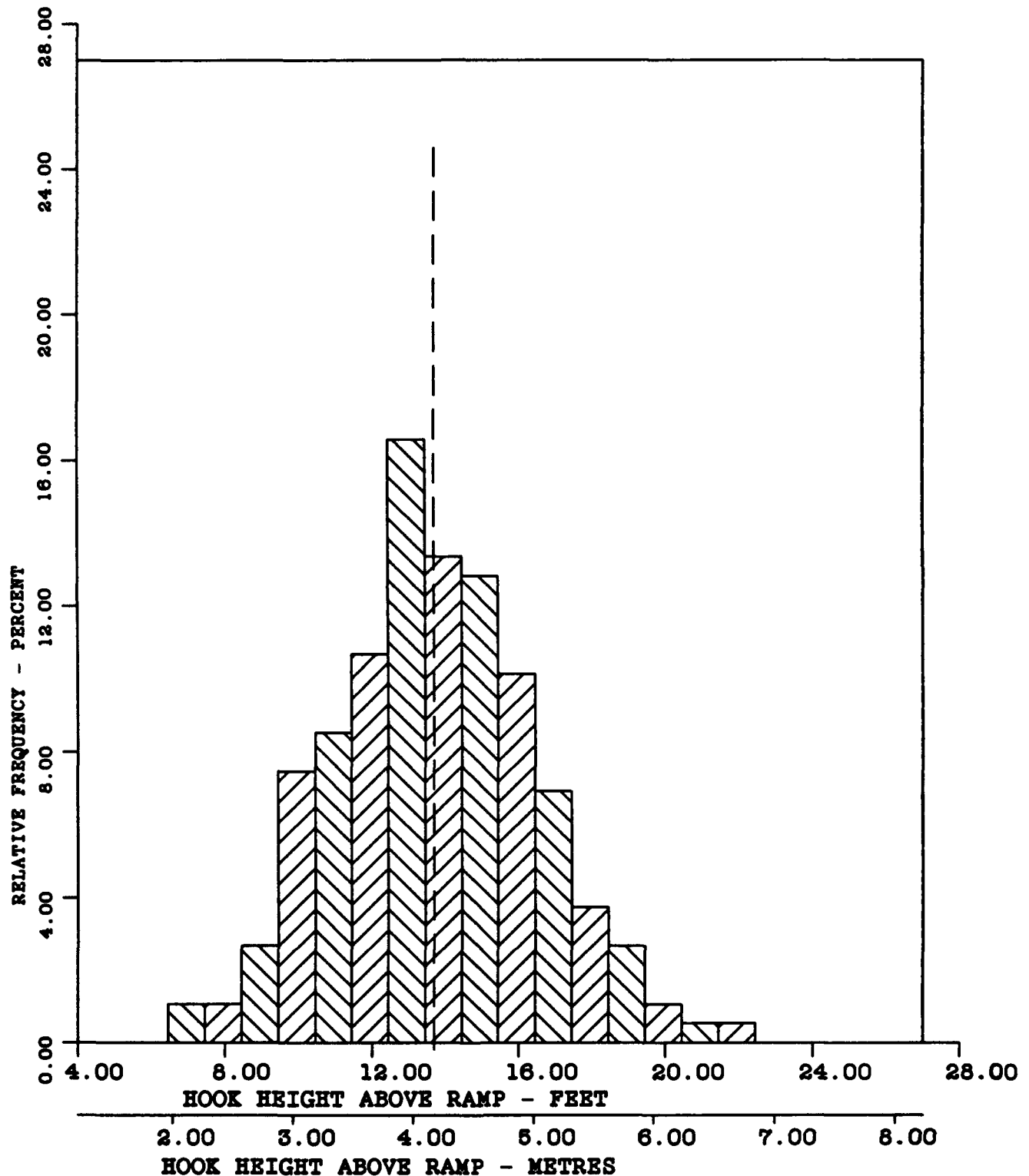


FIGURE D-40 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-187

 $\bar{X}$ -13.69 FEET (4.17 METRES)

A3-.18

S-2.74 FEET (.83 METRES)

A4-3.06

CURVE FITTED - NORMAL

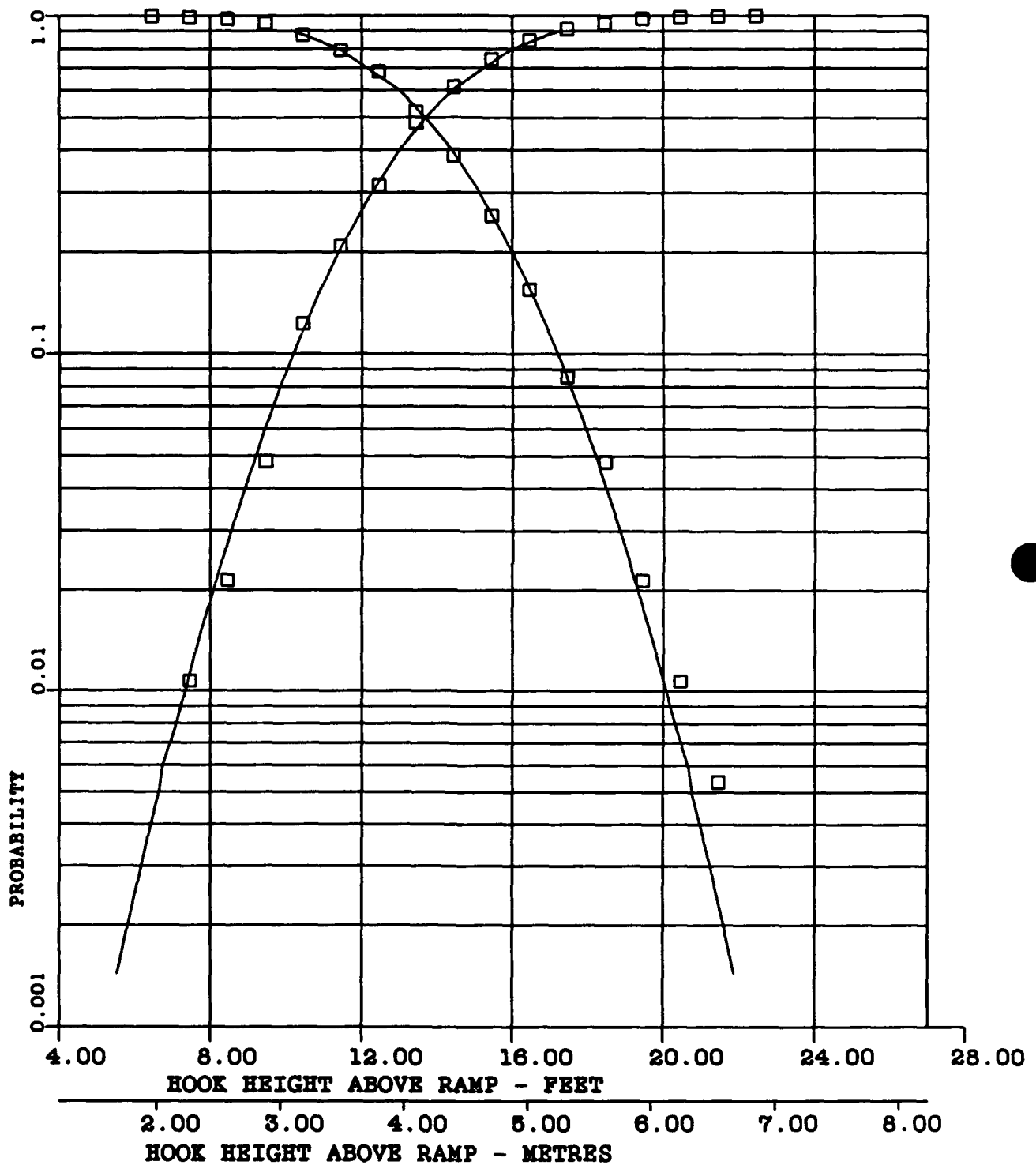


FIGURE D-41 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -119.23 KNOTS (61.33 METRES/SEC)

A3-.02

S-5.16 KNOTS (2.65 METRES/SEC)

A4-2.84

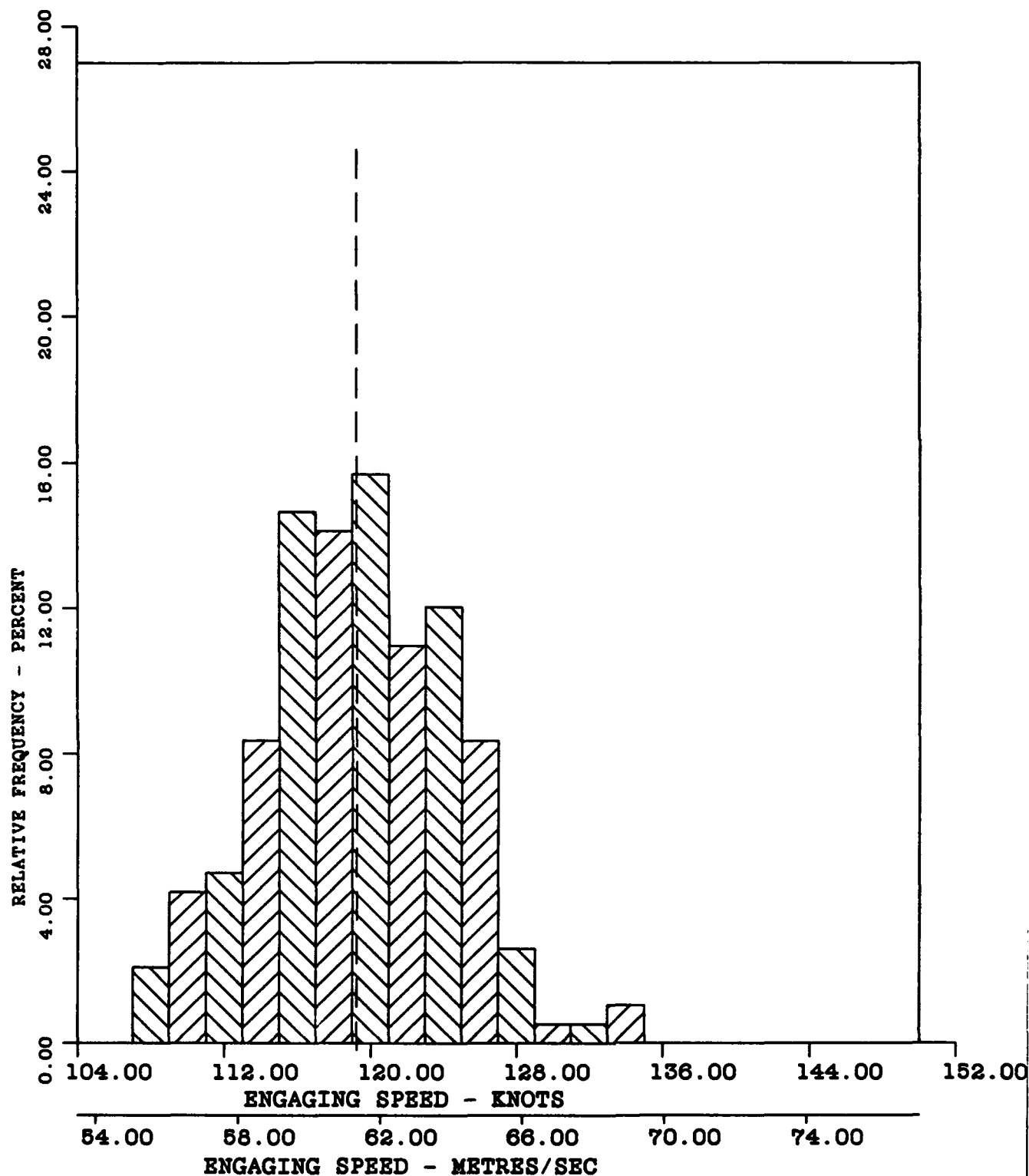


FIGURE D-42 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ =119.23 KNOTS (61.33 METRES/SEC)

A3=.02

S=5.16 KNOTS (2.65 METRES/SEC)

A4=2.84

CURVE FITTED - NORMAL

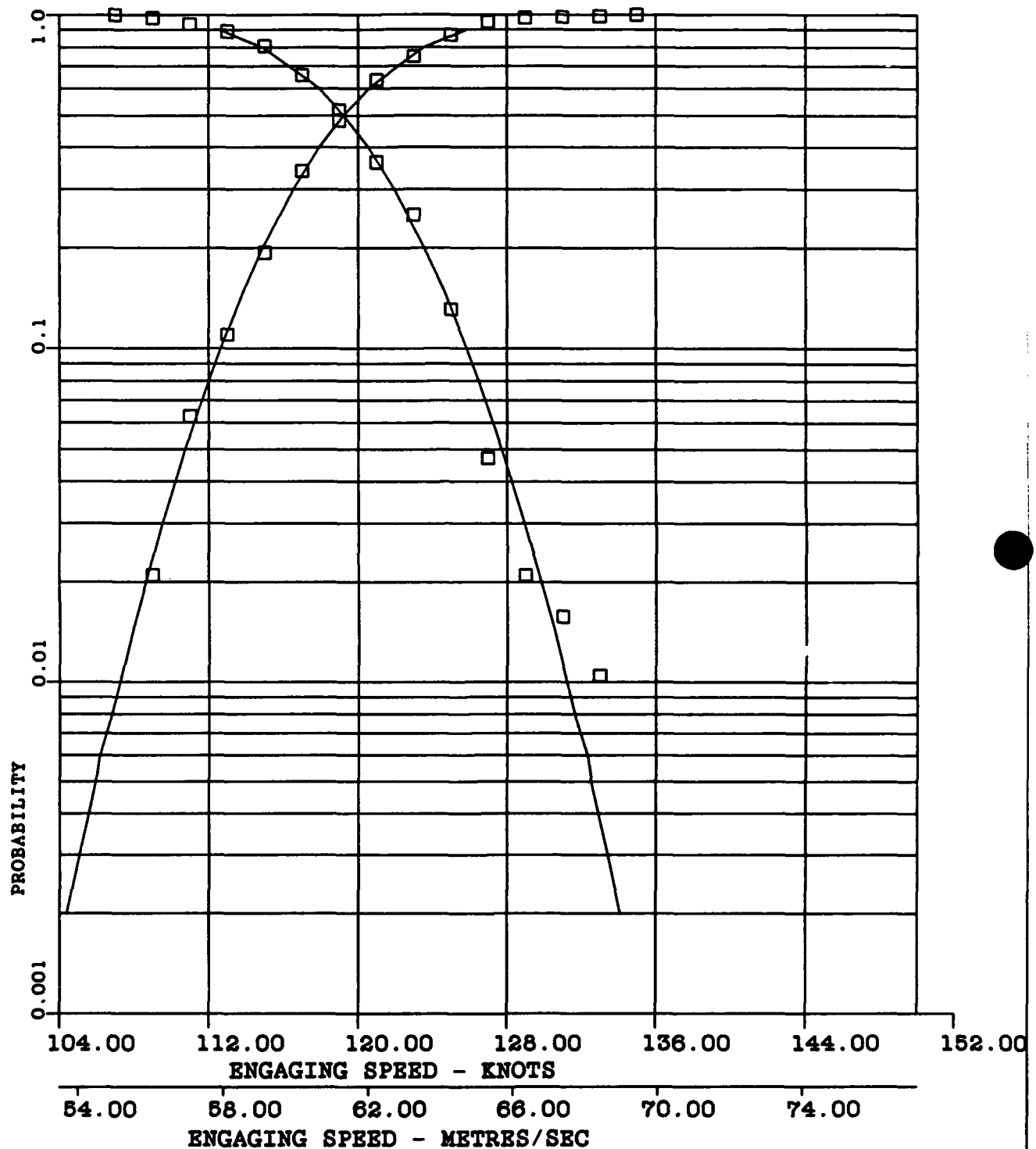


FIGURE D-43 PROBABILITY DISTRIBUTION OF ENGAGING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-181

 $\bar{X}$ -134.13 KNOTS (68.99 METRES/SEC)

A3--.47

S-2.51 KNOTS (1.29 METRES/SEC)

A4-2.45

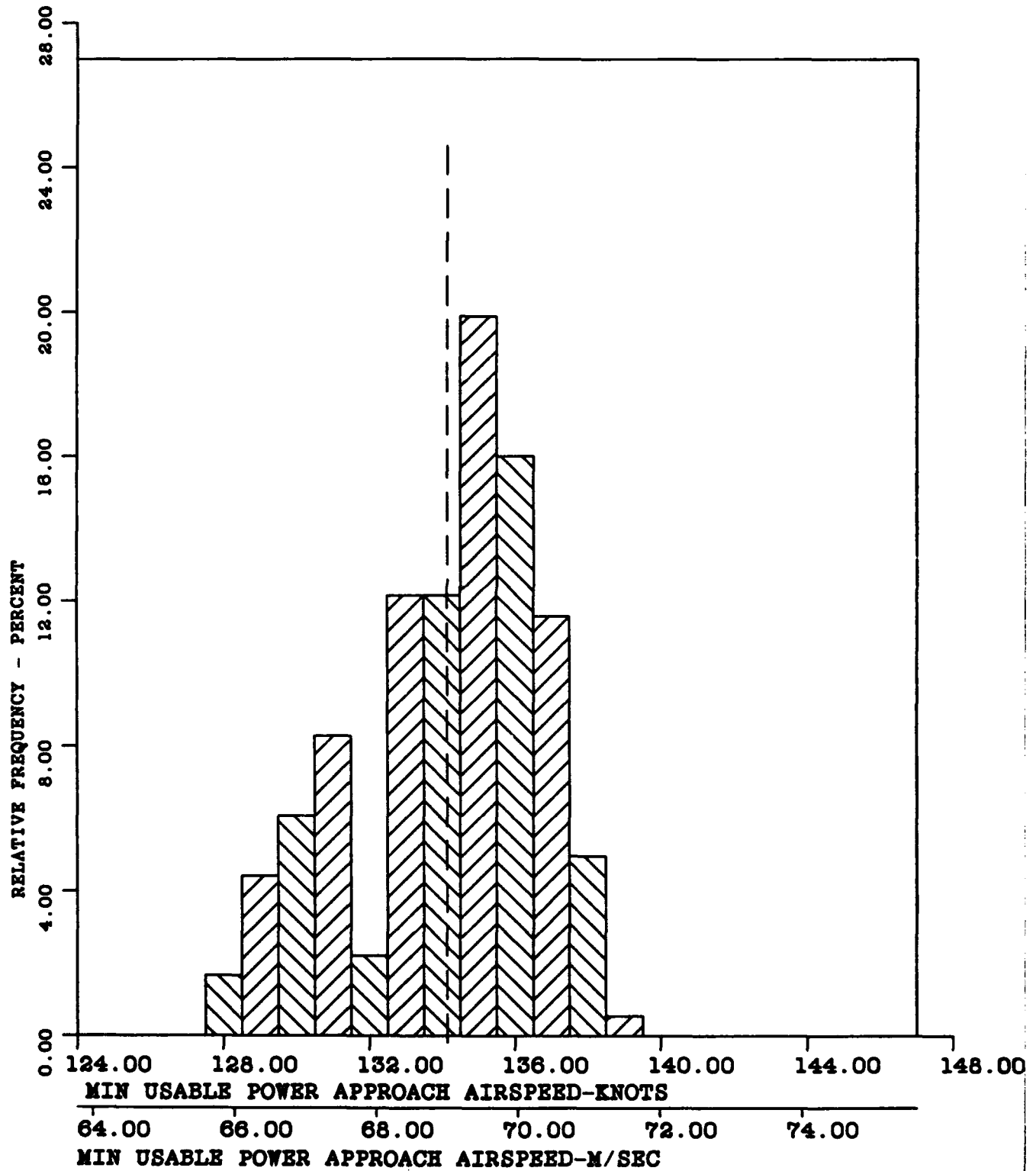


FIGURE D-44 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-181

 $\bar{X}$ -1.08

S-.03

A3-.35

A4-3.66

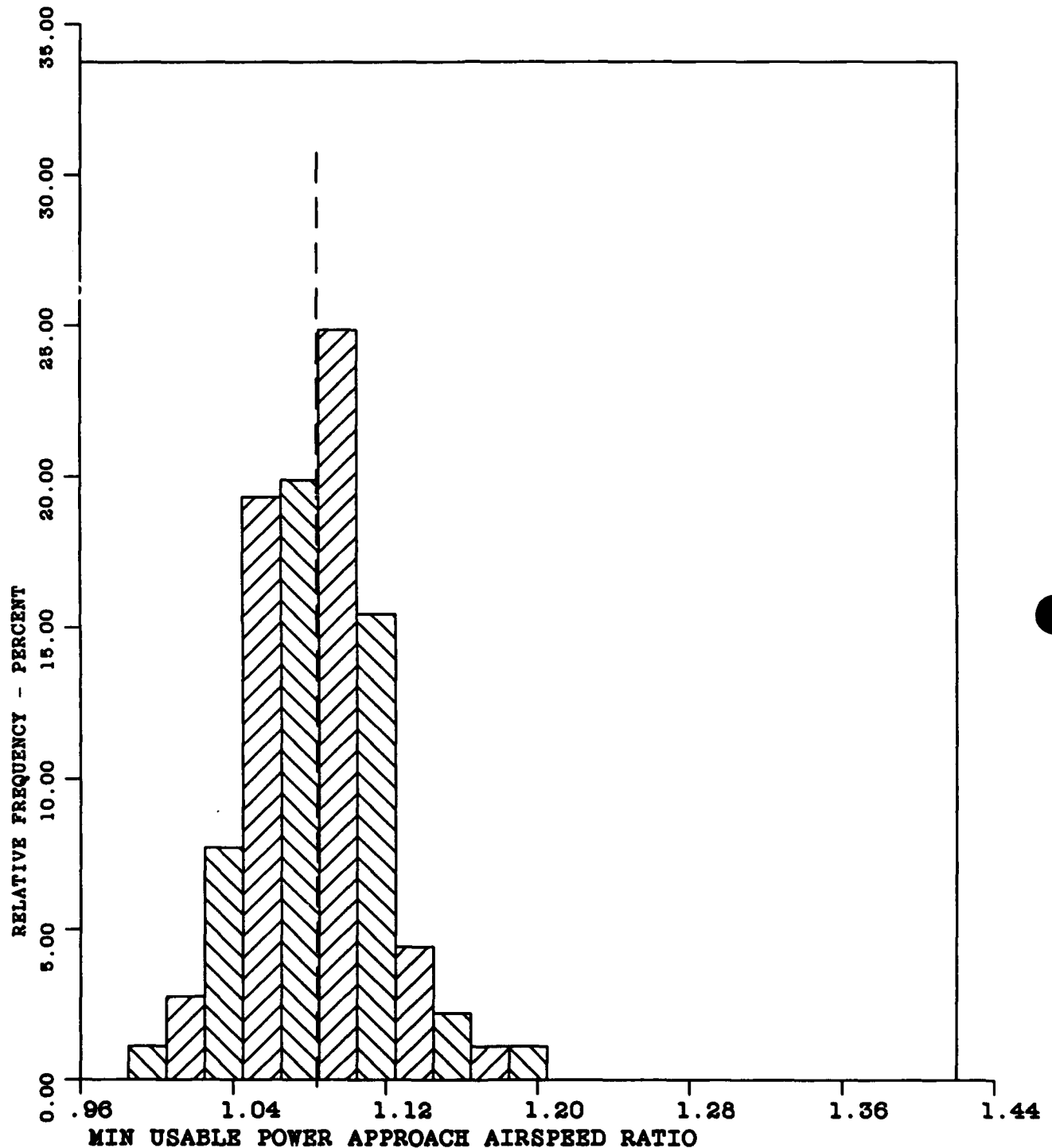


FIGURE D-45 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-190

 $\bar{X}$  = -.41 DEGREES (-.007 RADIANS)

A3 = -.47

S = 1.07 DEGREES (.018 RADIANS)

A4 = 3.32

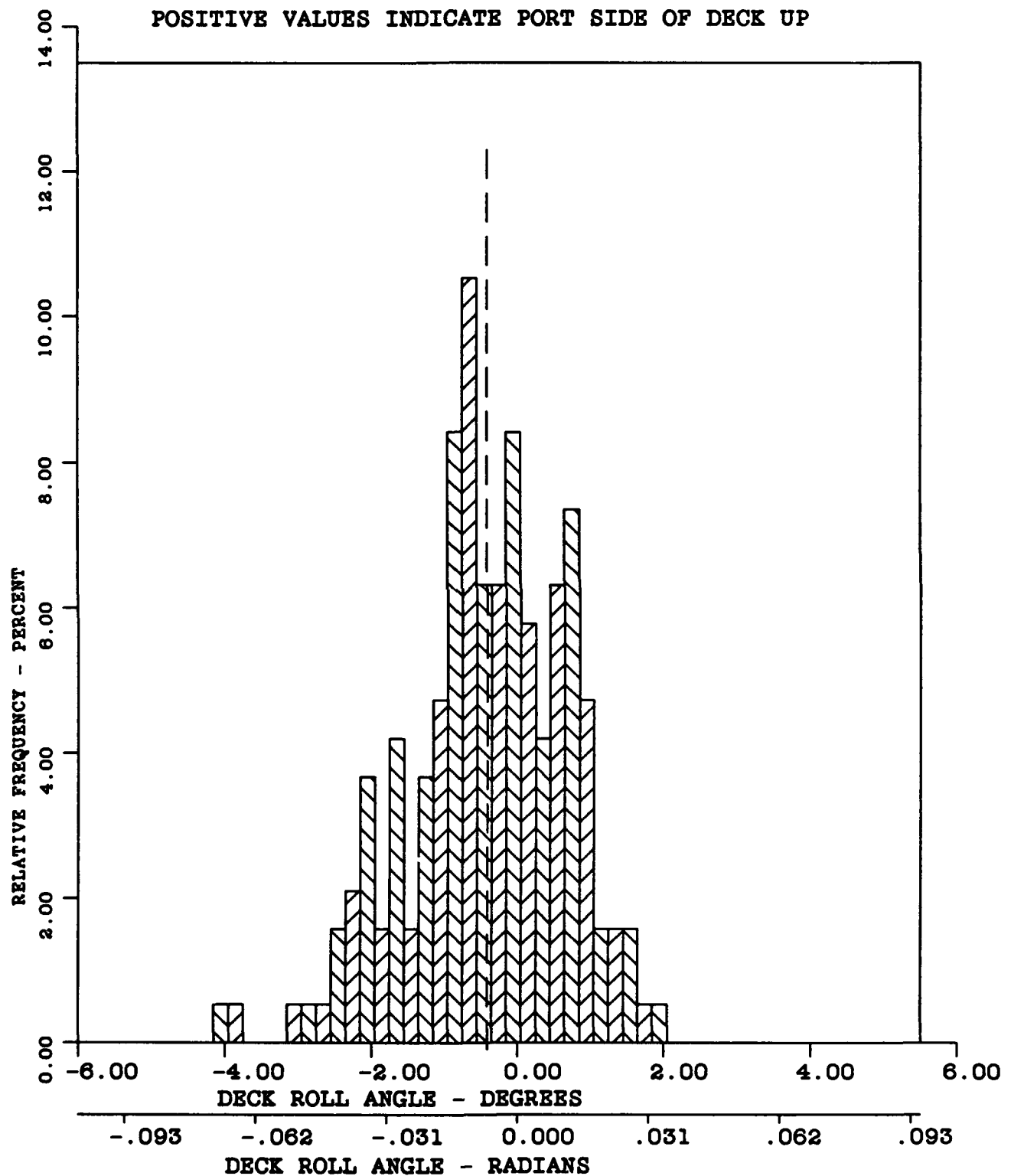


FIGURE D-46 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N=190

 $\bar{X}$  = -.41 DEGREES (-.007 RADIANS)

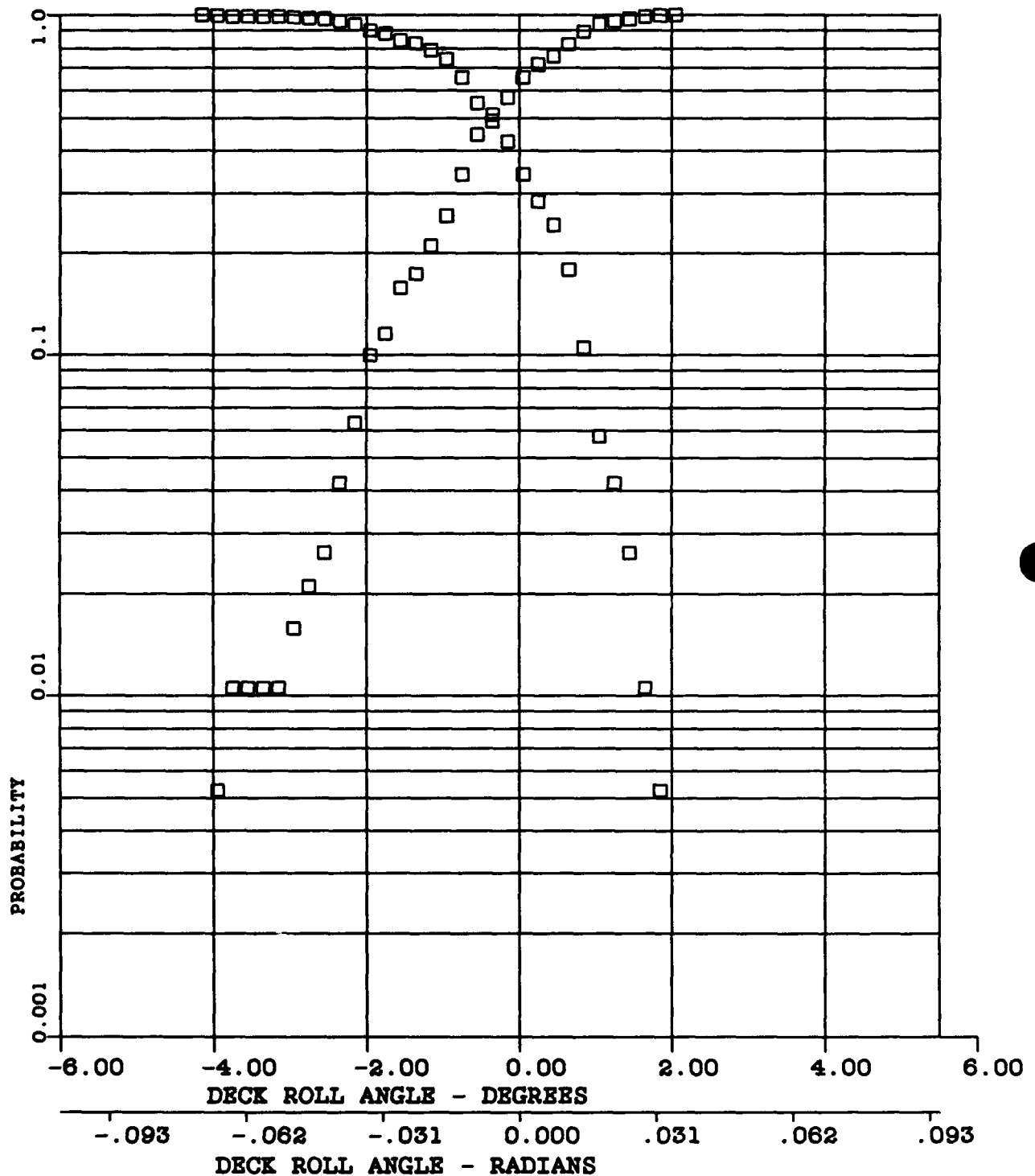
A3 = -.47

S = 1.07 DEGREES (.018 RADIANS)

A4 = 3.32

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

FIGURE D-47 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-190  $\bar{X}$ -.32 DEGREES (-.005 RADIANS)

A3-.00

S-.16 DEGREES (.002 RADIANS)

A4-2.97

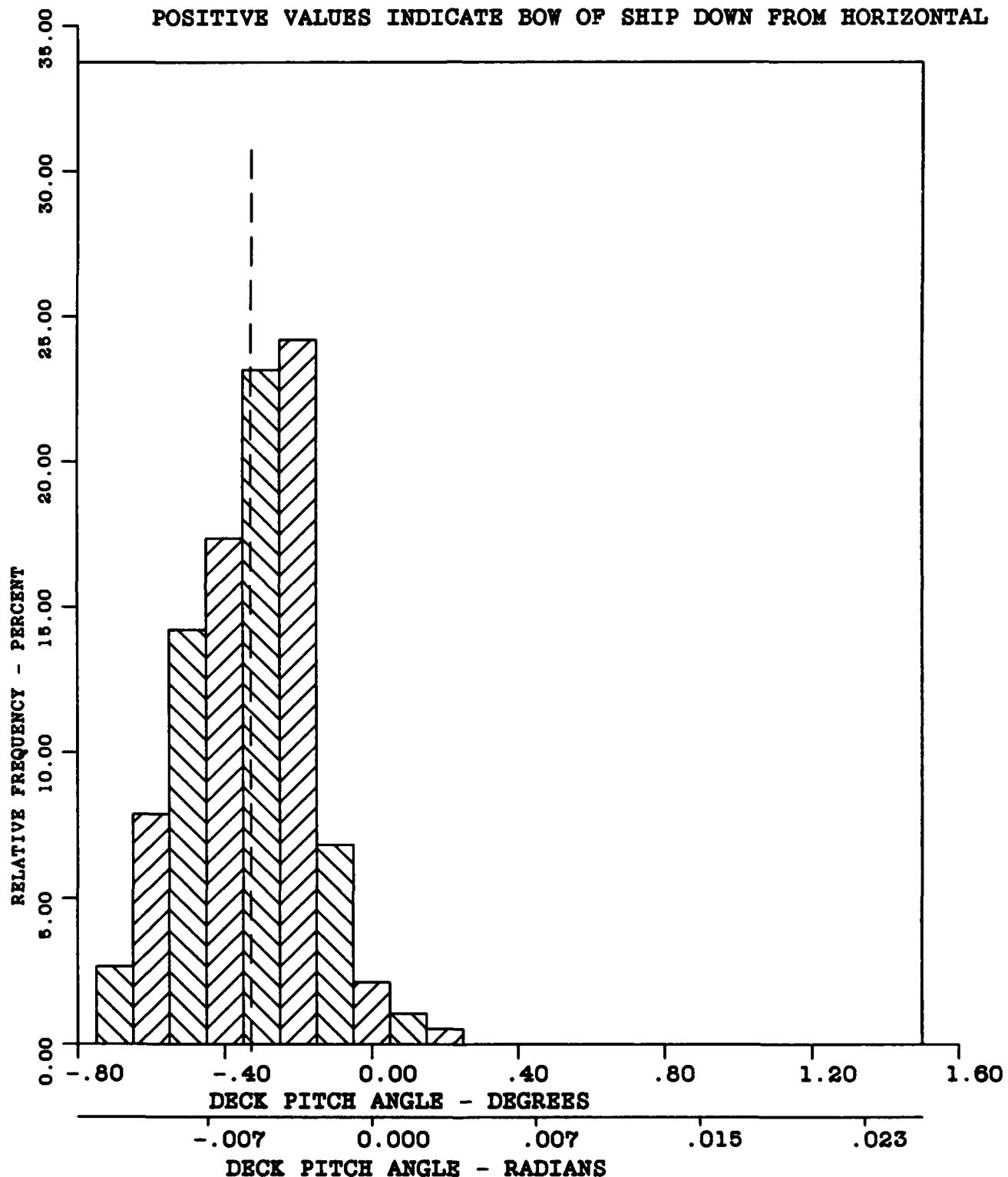


FIGURE D-48 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=190

 $\bar{X} = -.32$  DEGREES ( $-.005$  RADIANS)

A3=.00

S=.16 DEGREES (.002 RADIANS)

A4=2.97

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

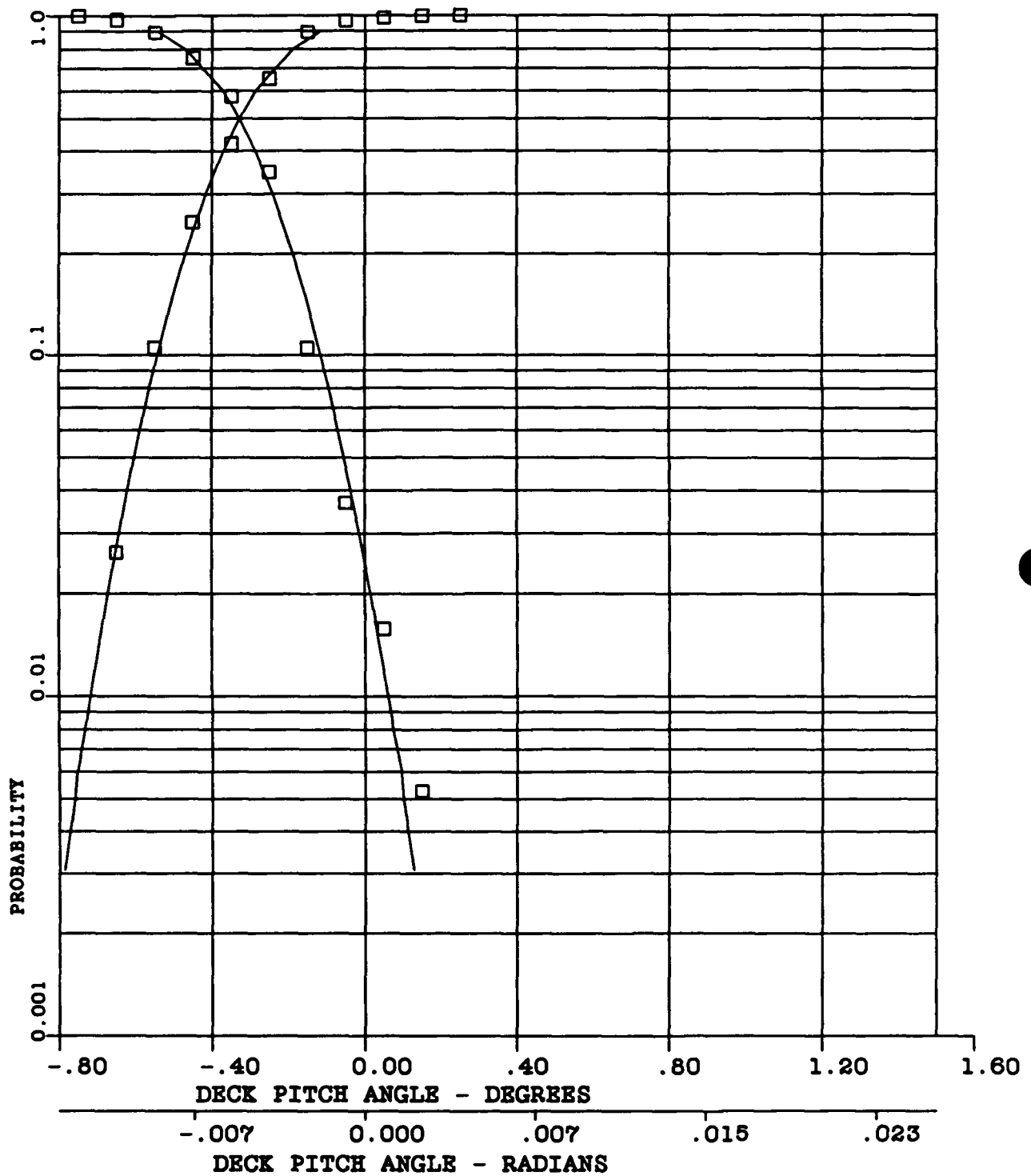


FIGURE D-49 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-181

 $\bar{X}$ -30674.46 POUNDS (13913.93 KILOGRAMS)

A3--.43

S-1142.87 POUNDS (518.40 KILOGRAMS)

A4-2.41

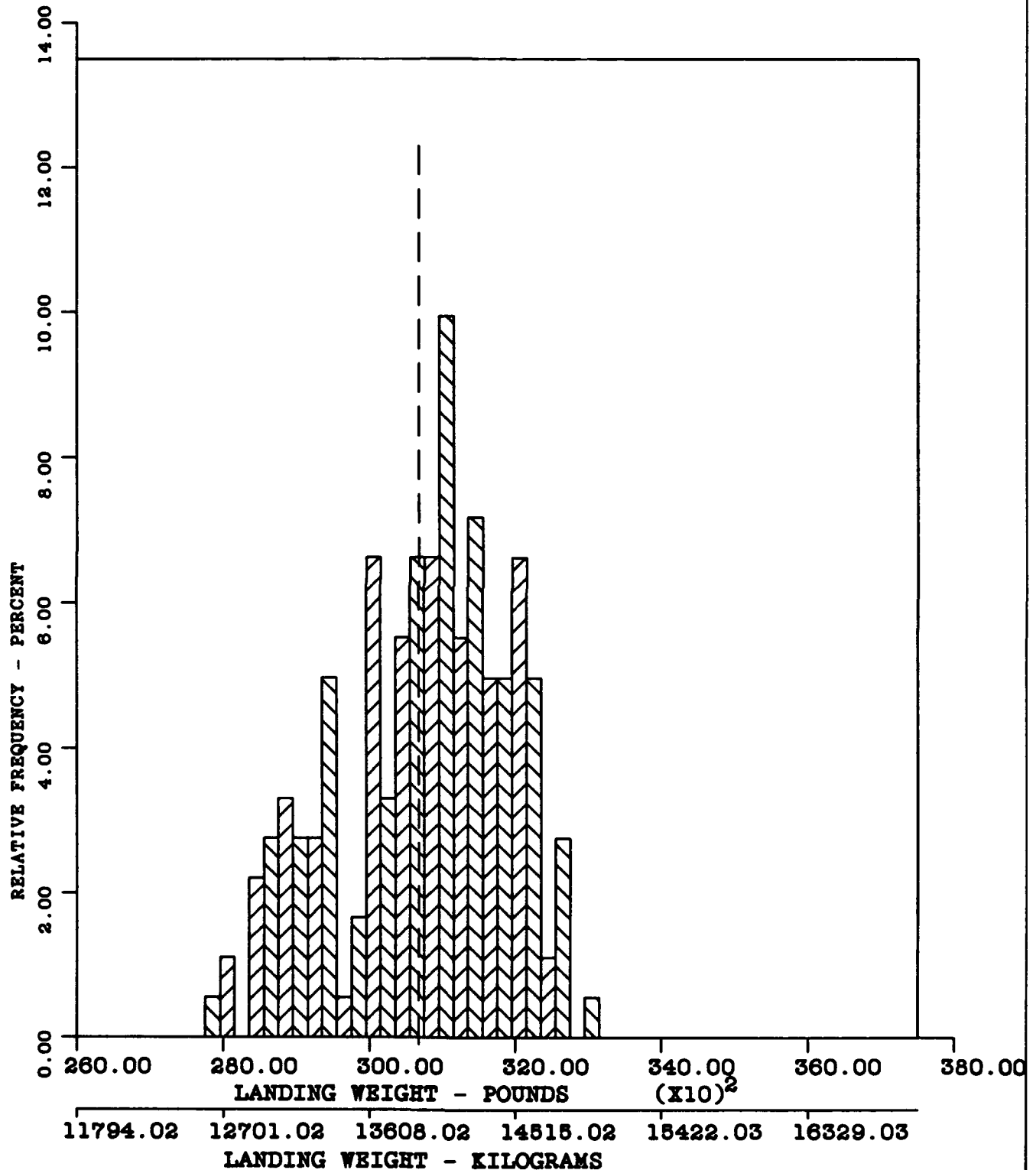


FIGURE D-50 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -.30 DEG/SEC (.005 RAD/SEC)

A3--.20

S-1.88 DEG/SEC (.032 RAD/SEC)

A4-4.17

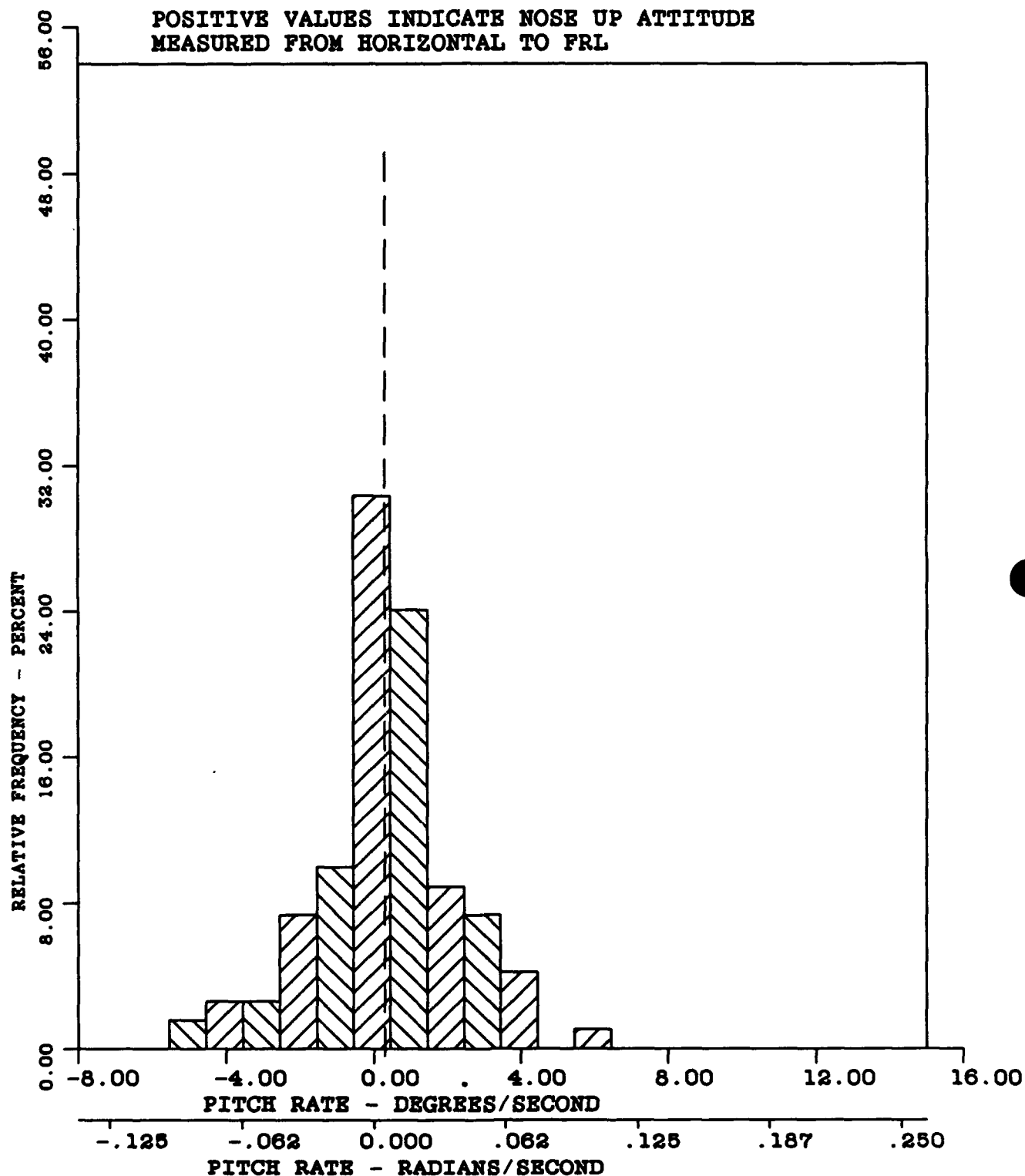


FIGURE D-51 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ -.30 DEG/SEC (.005 RAD/SEC)

A3--.20

S-1.88 DEG/SEC (.032 RAD/SEC)

A4-4.17

CURVE FITTED - NORMAL

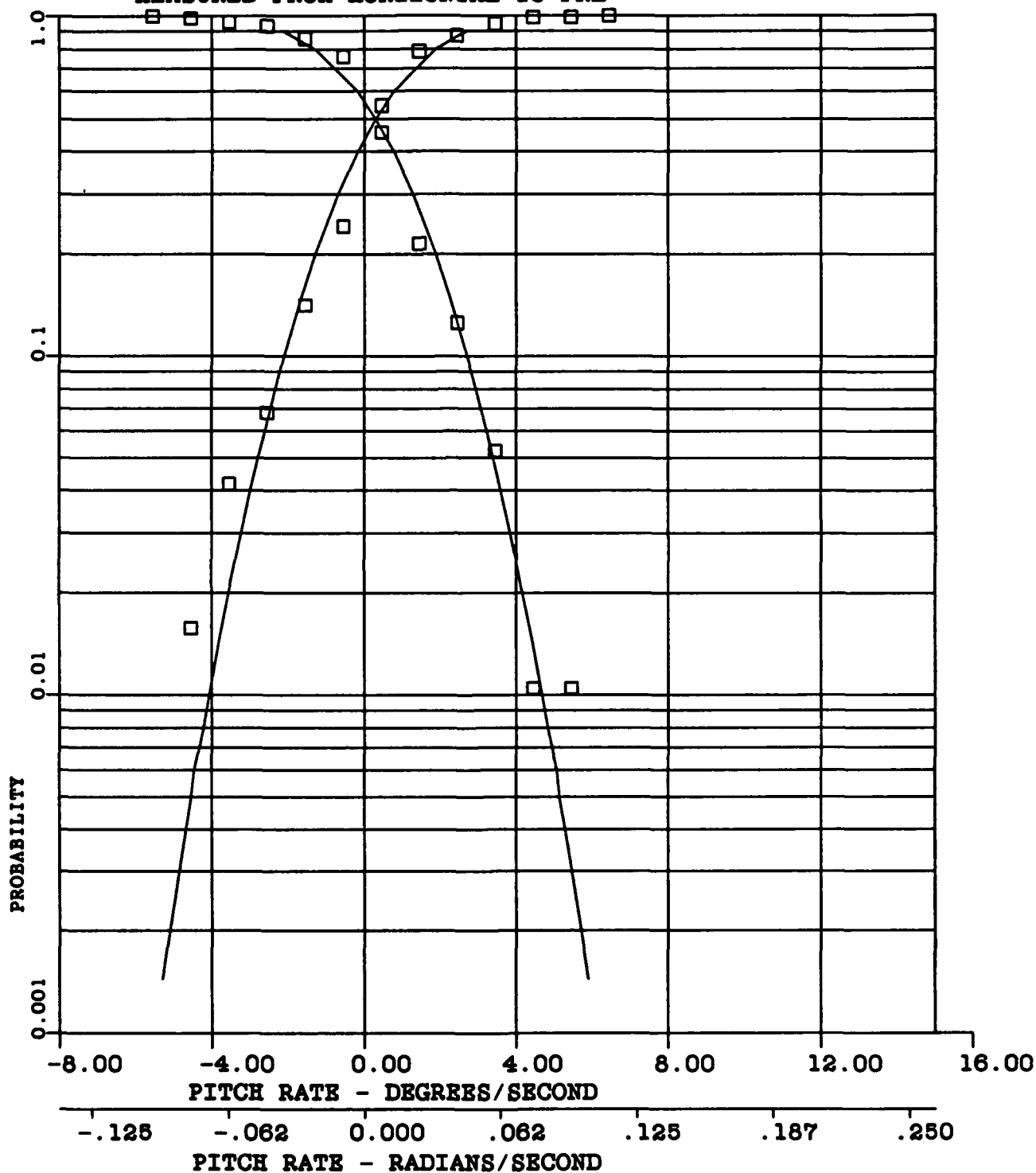
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE D-52 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191  $\bar{X}$ -3.17 DEGREES (-.055 RADIANS)

A3-.60

S-1.20 DEGREES (.020 RADIANS)

A4-5.18

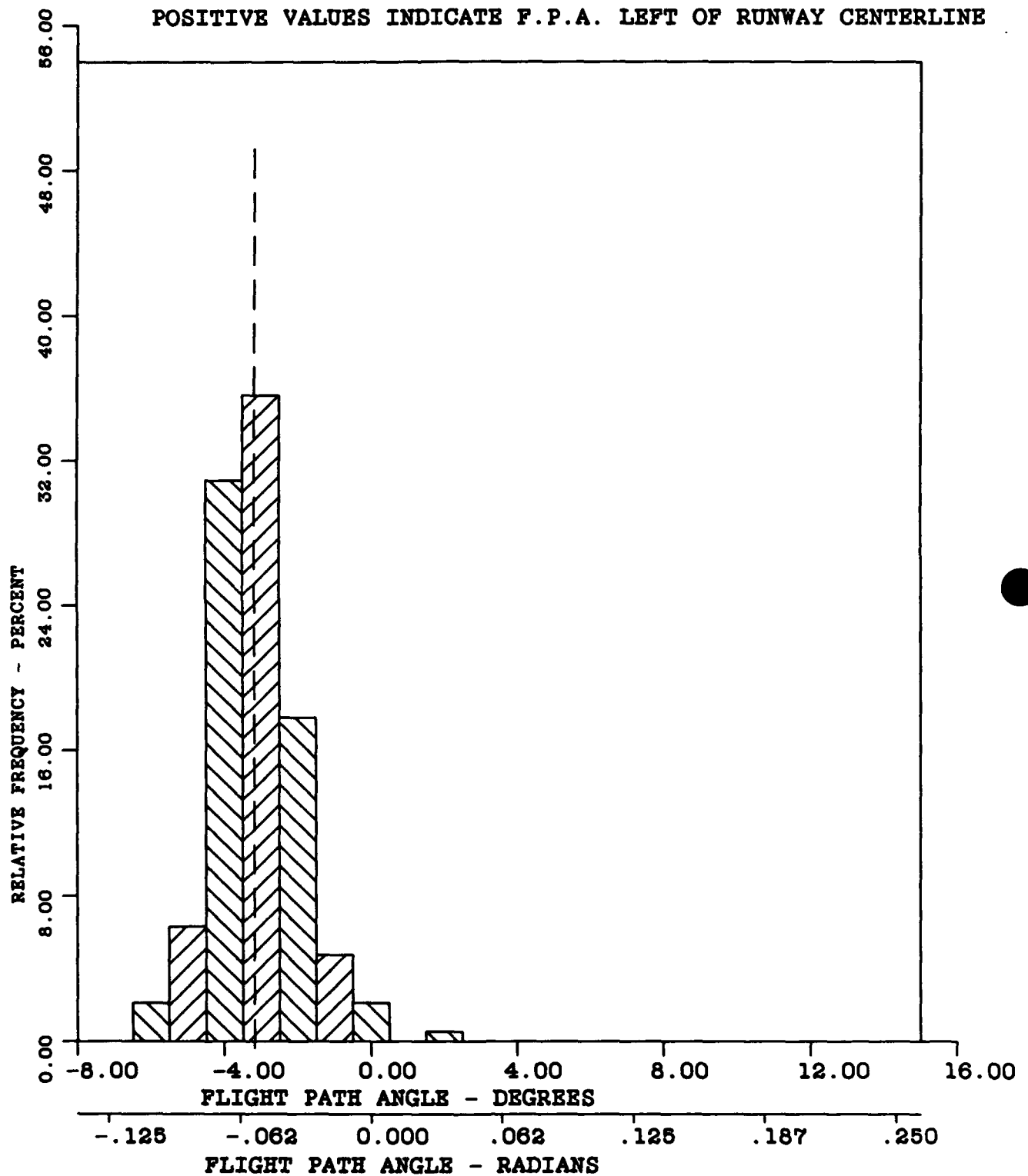


FIGURE D-53 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ =-3.17 DEGREES (-.055 RADIANS)

A3=.60

S=1.20 DEGREES (.020 RADIANS)

A4=5.18

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

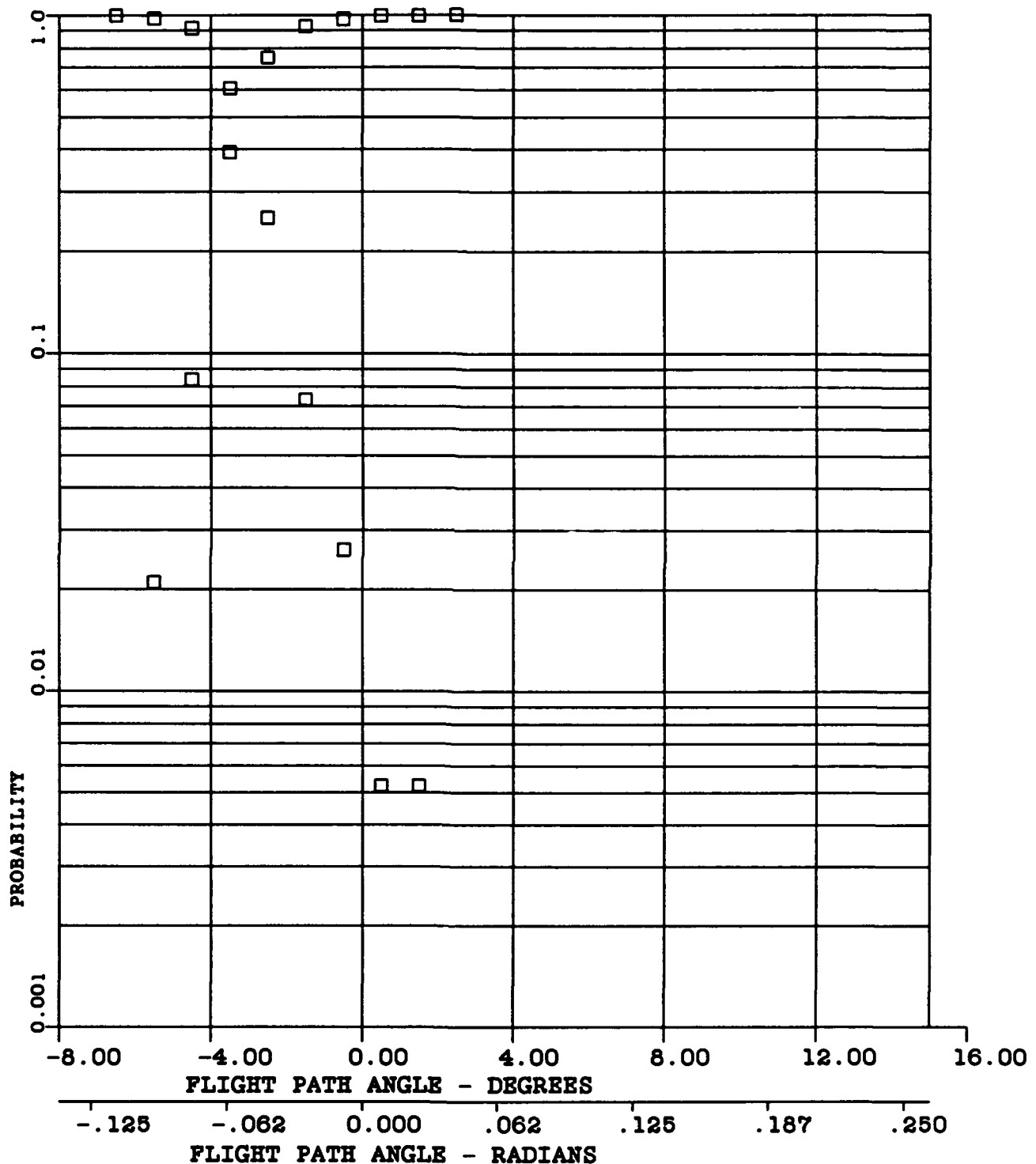


FIGURE D-54 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-191  $\bar{X}$ -1.67 DEGREES (.029 RADIANS)

A3-.57

S-3.46 DEGREES (.060 RADIANS)

A4-2.93

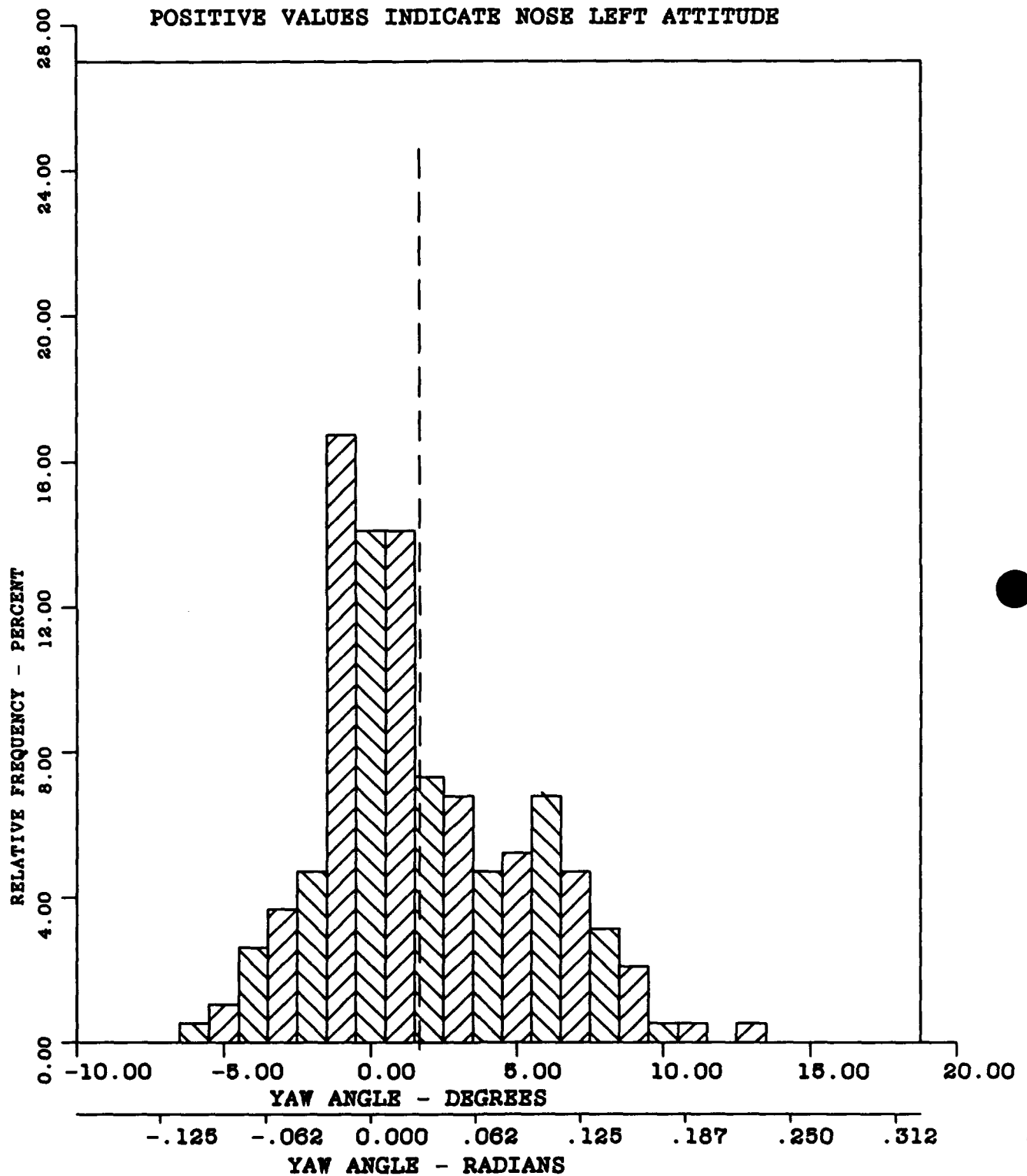


FIGURE D-55 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-191

 $\bar{X}$ =-1.67 DEGREES (.029 RADIANS)

A3=.57

S=3.46 DEGREES (.060 RADIANS)

A4=2.93

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

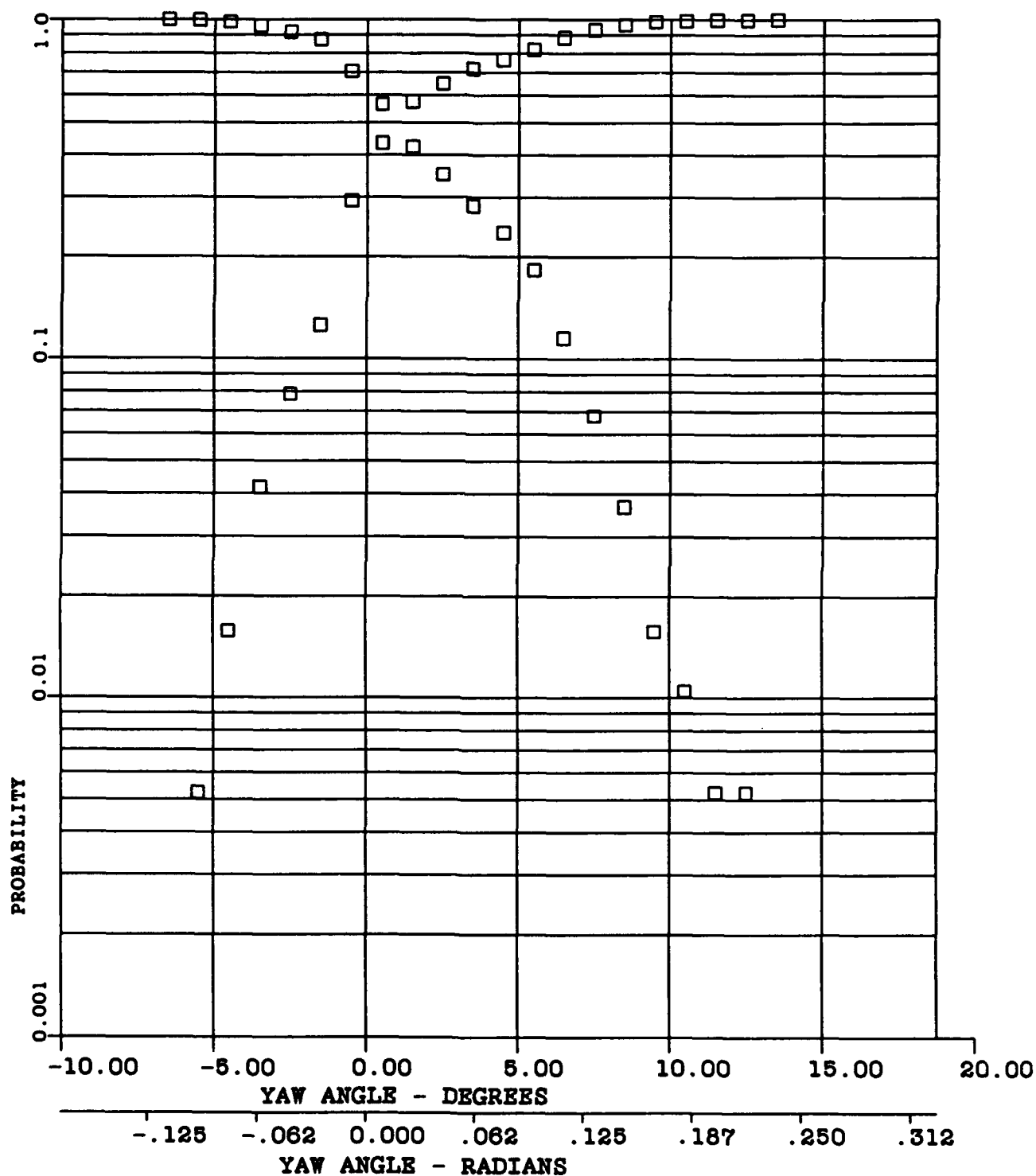


FIGURE D-56 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX E**

**F-18 AIRCRAFT**

**NIGHT CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

## Appendix E:

Frequency and Probability Distributions,  
F-18 Aircraft, Night Landings

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MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=76

 $\bar{X}$ =26.66 KNOTS (13.71 METRES/SEC)

A3=-0.75

S= 3.10 KNOTS (1.59 METRES/SEC)

A4=2.42

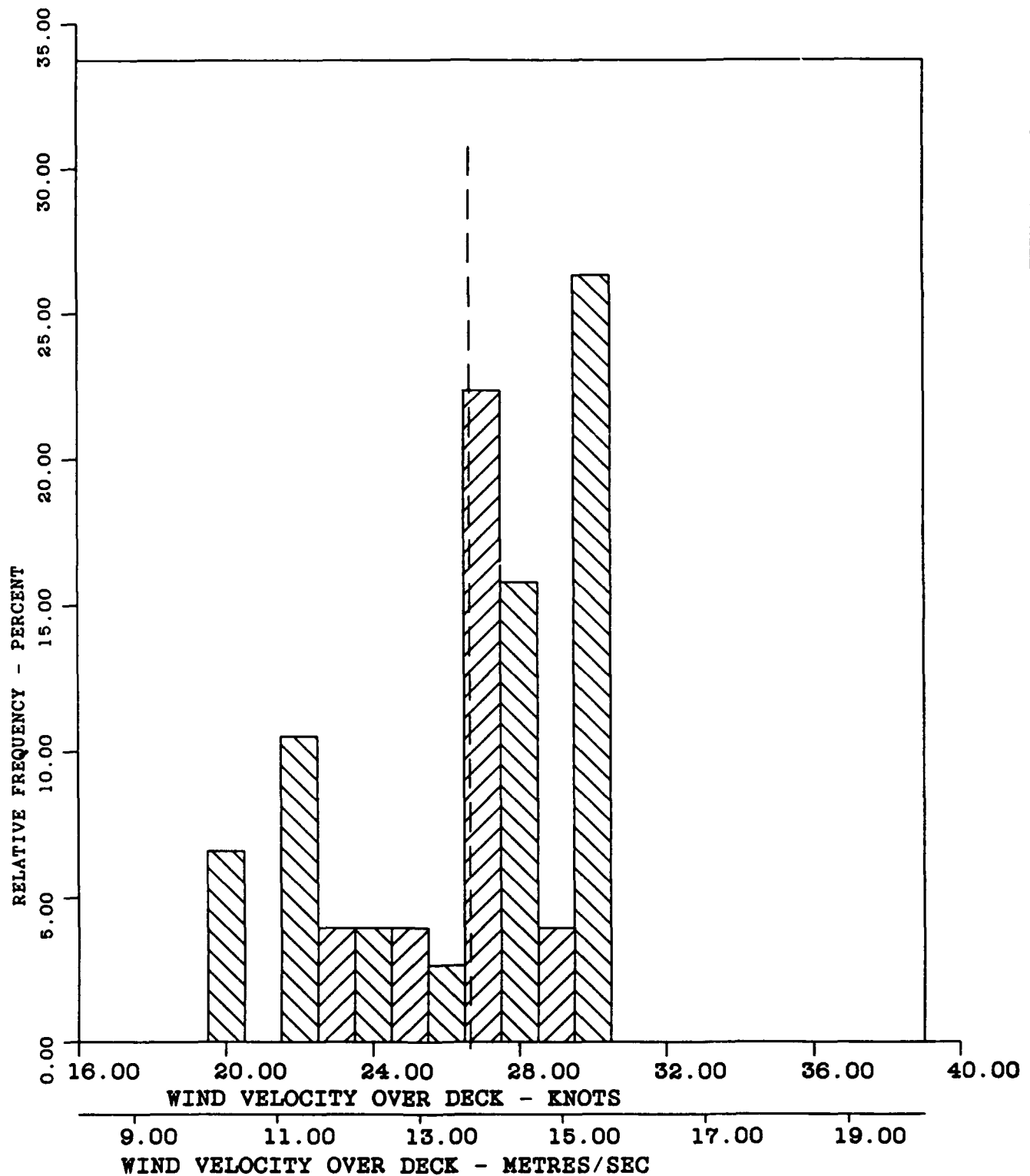


FIGURE E-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -26.66 KNOTS (13.71 METRES/SEC)

A3=-0.75

S= 3.10 KNOTS (1.59 METRES/SEC)

A4=2.42

CURVE FITTED - PEARSON TYPE III

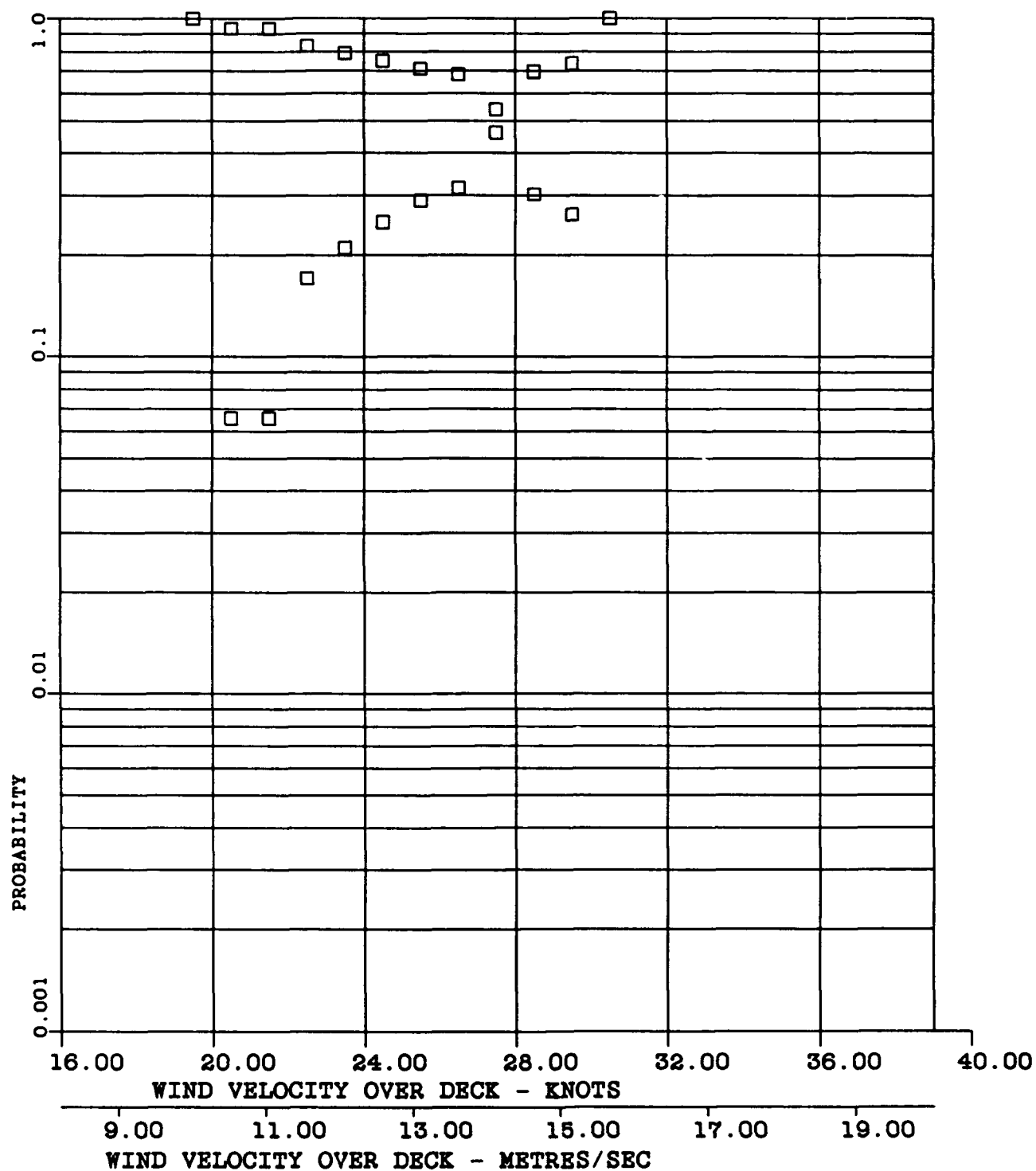


FIGURE E-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=76

 $\bar{X}$ =147.96 KNOTS (76.11 METRES/SEC)

A3=0.02

S= 6.34 KNOTS (3.26 METRES/SEC)

A4=2.54

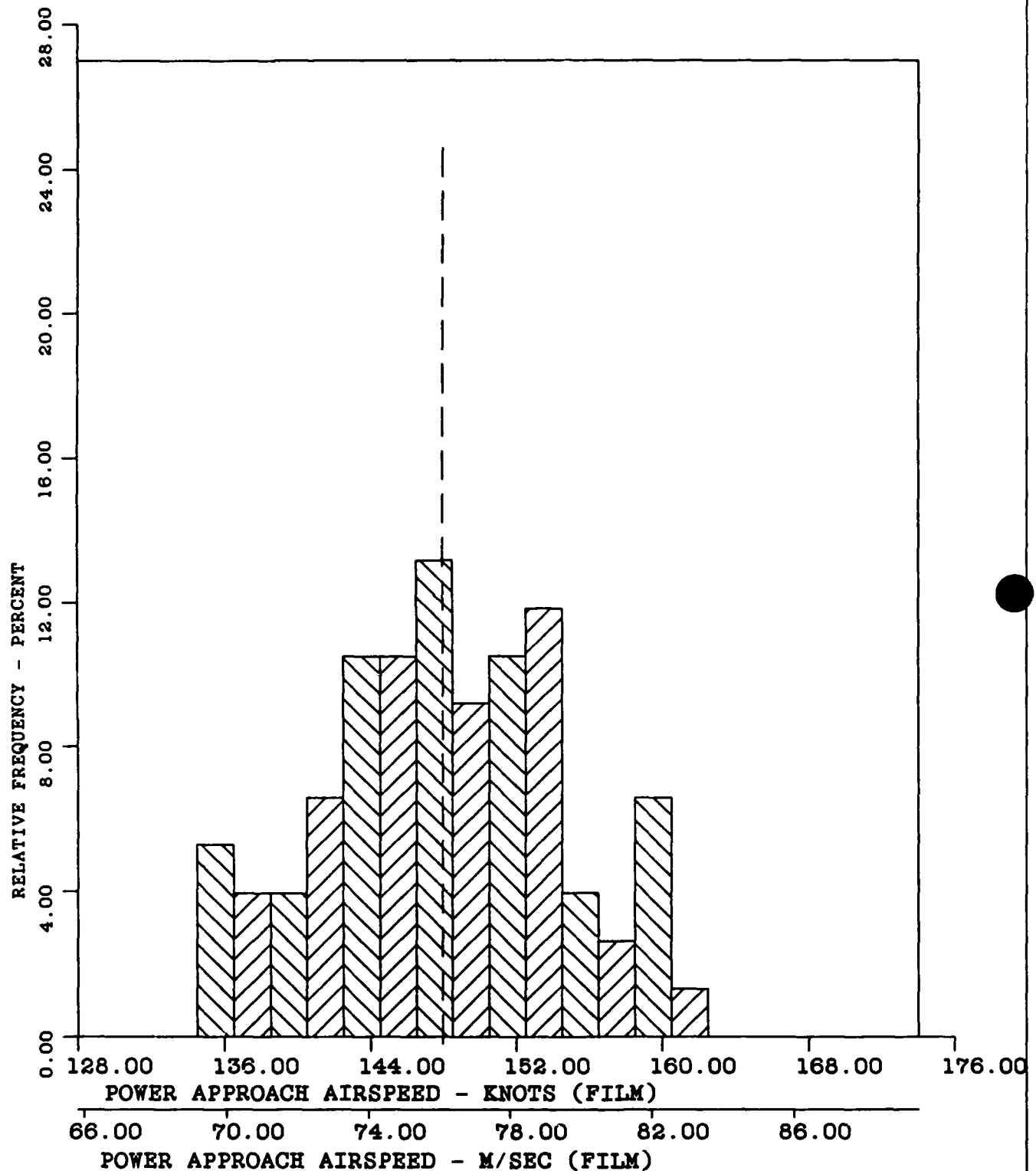


FIGURE E-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL F/A-18A AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIAN)  
N-76  $\bar{X}$ -147.96 KNOTS (76.11 METRES/SEC)  
S- 6.34 KNOTS (3.26 METRES/SEC)  
CURVE FITTED - NORMAL

A3-0.02

A4-2.54

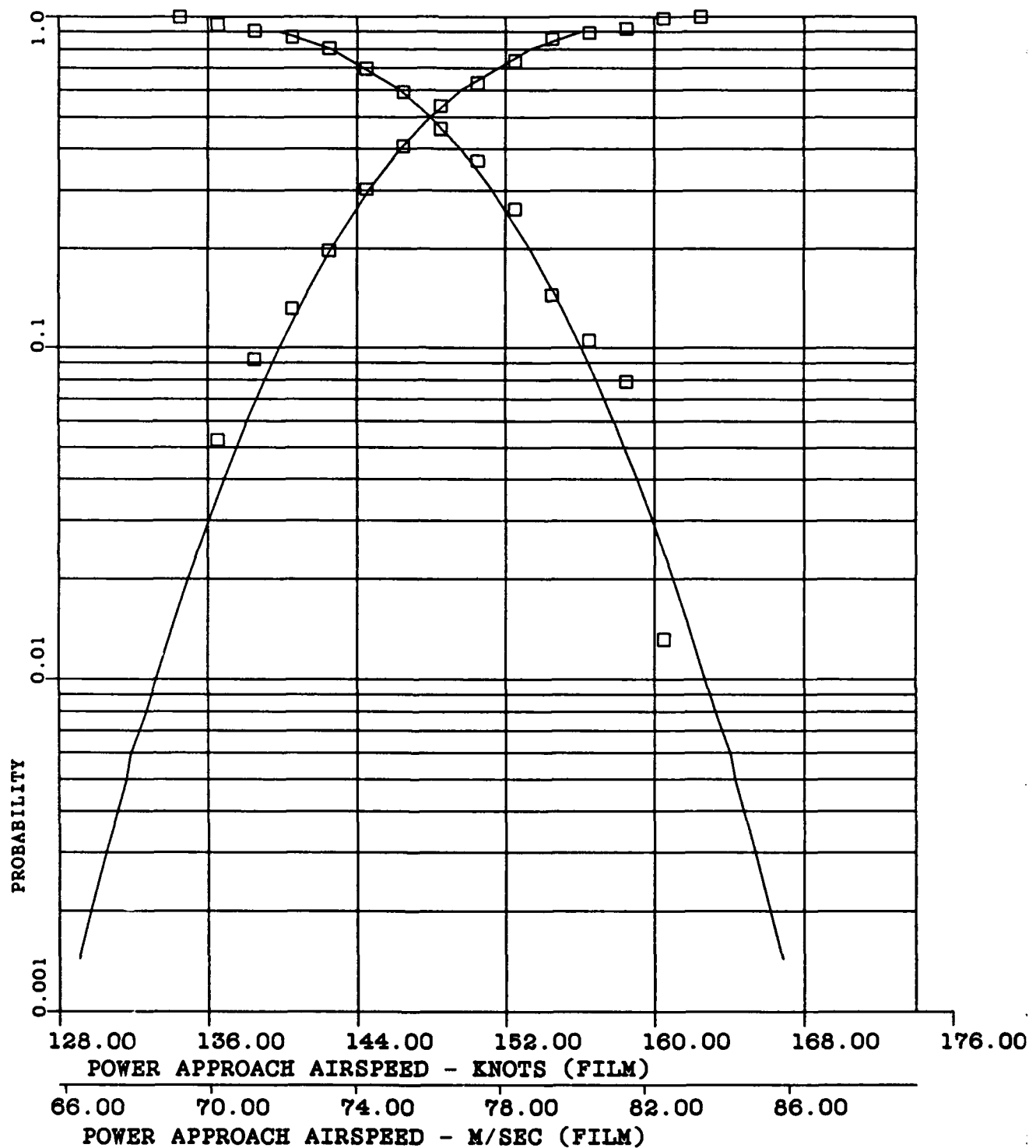


FIGURE E-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -9.73 FEET/SEC (2.97 METRES/SEC)

A3--0.28

S= 2.50 FEET/SEC (0.76 METRES/SEC)

A4=2.74

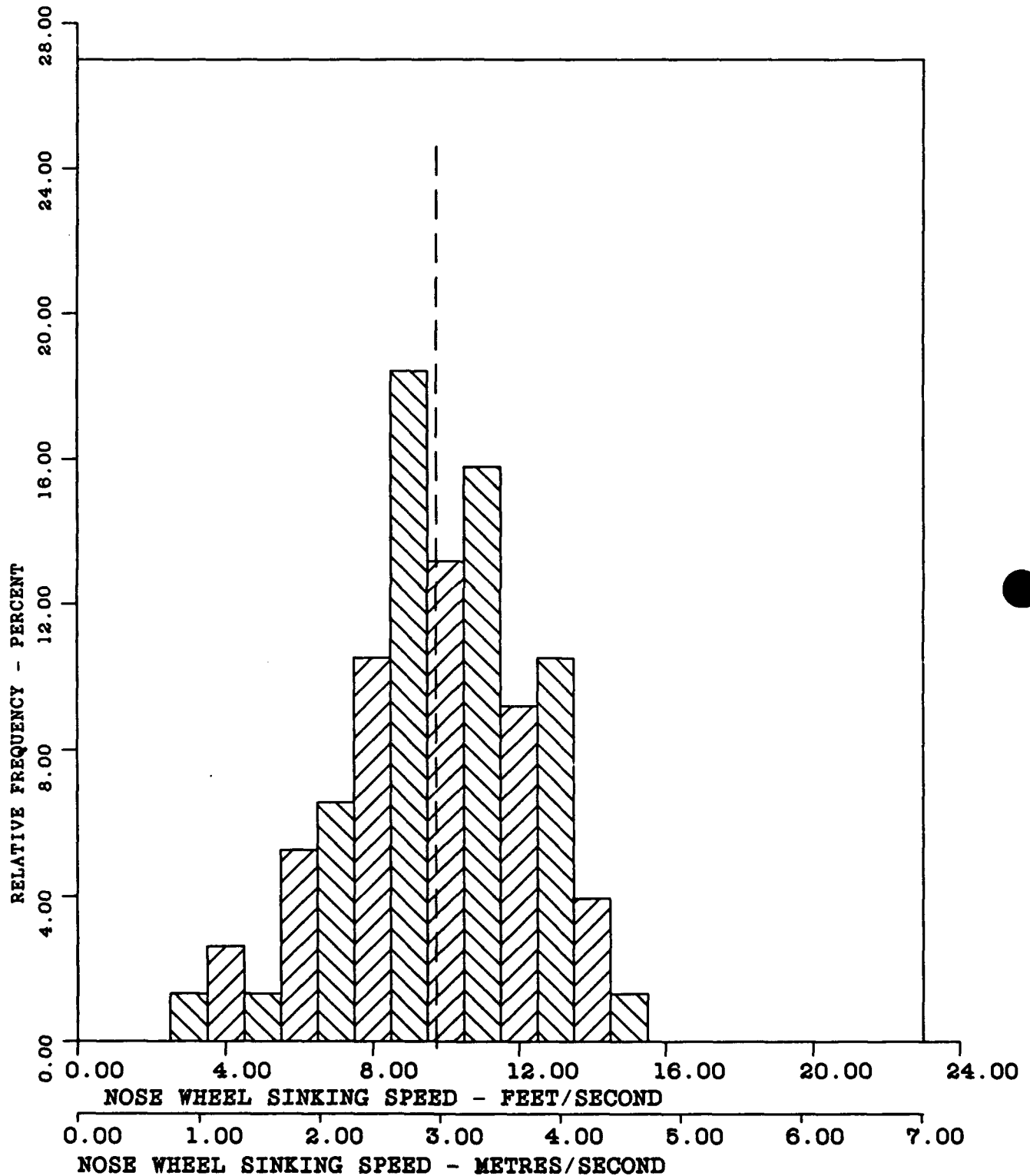


FIGURE E-5 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -9.73 FEET/SEC (2.97 METRES/SEC)

A3--0.28

S= 2.50 FEET/SEC (0.76 METRES/SEC)

A4-2.74

CURVE FITTED - NORMAL

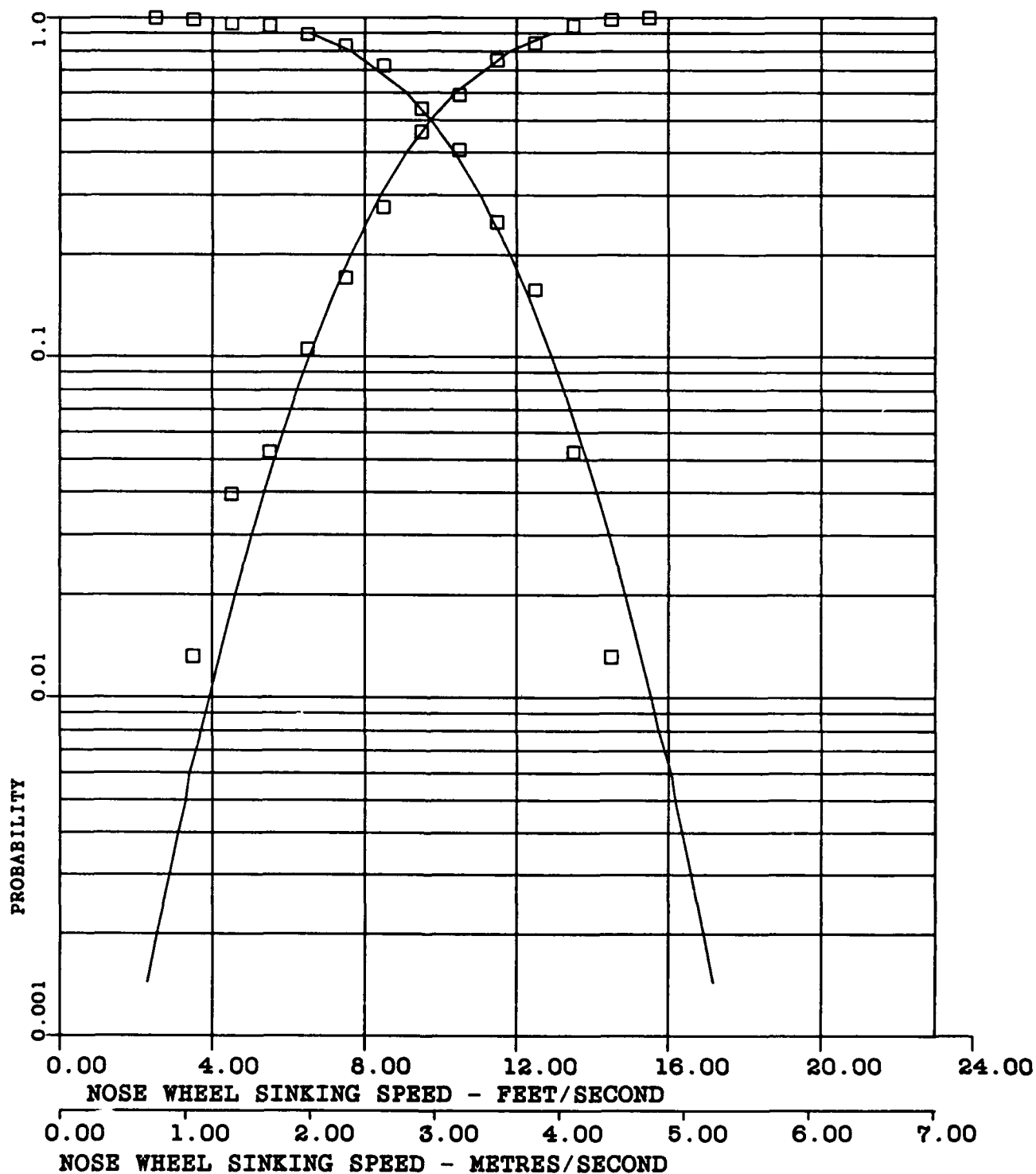


FIGURE E-6 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -10.68 FEET/SEC (3.26 METRES/SEC)

A3-0.13

S- 2.63 FEET/SEC (0.80 METRES/SEC)

A4-2.93

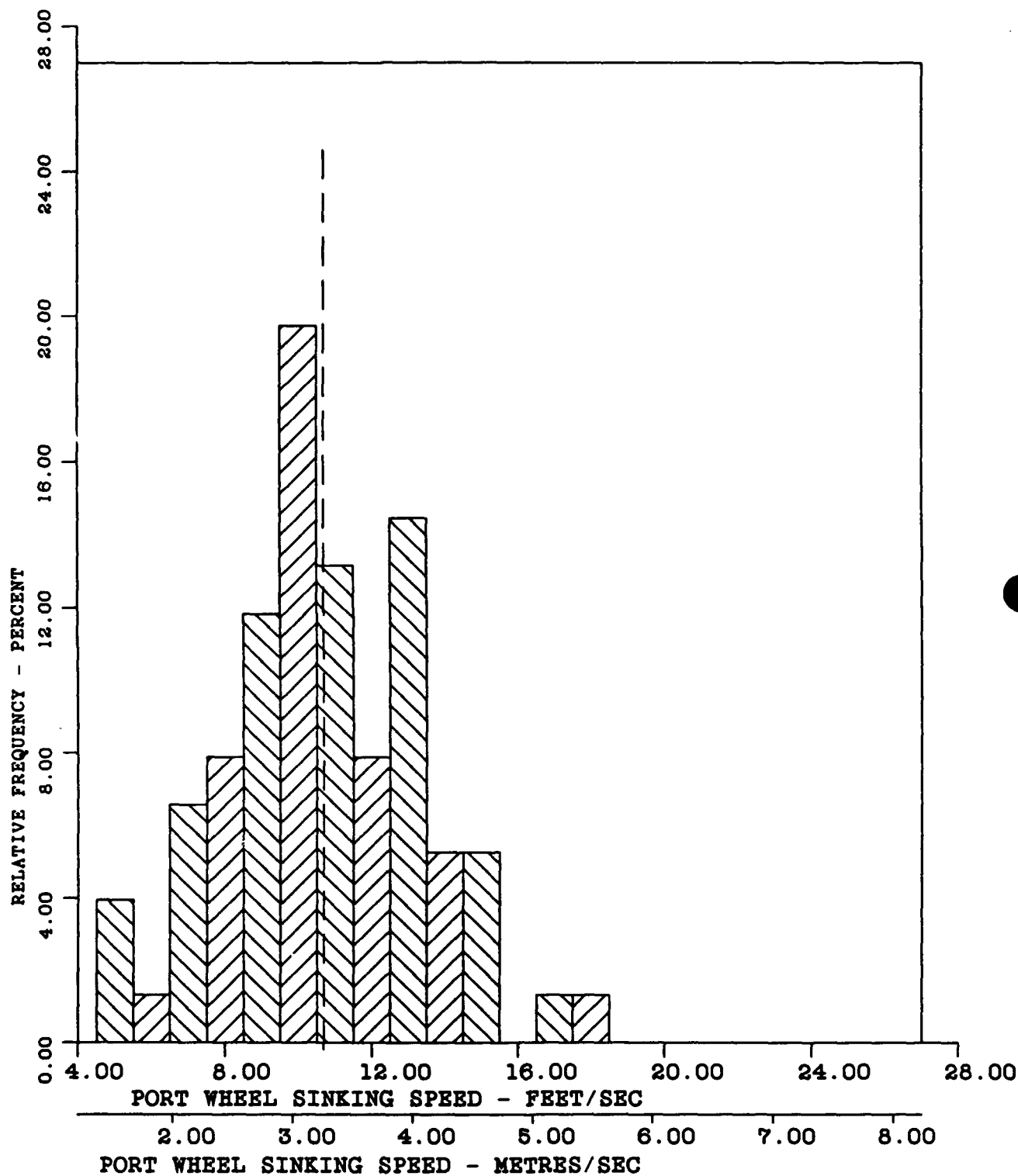


FIGURE E-7 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -10.68 FEET/SEC (3.26 METRES/SEC)

A3-0.13

S- 2.63 FEET/SEC (0.80 METRES/SEC)

A4-2.93

CURVE FITTED - NORMAL

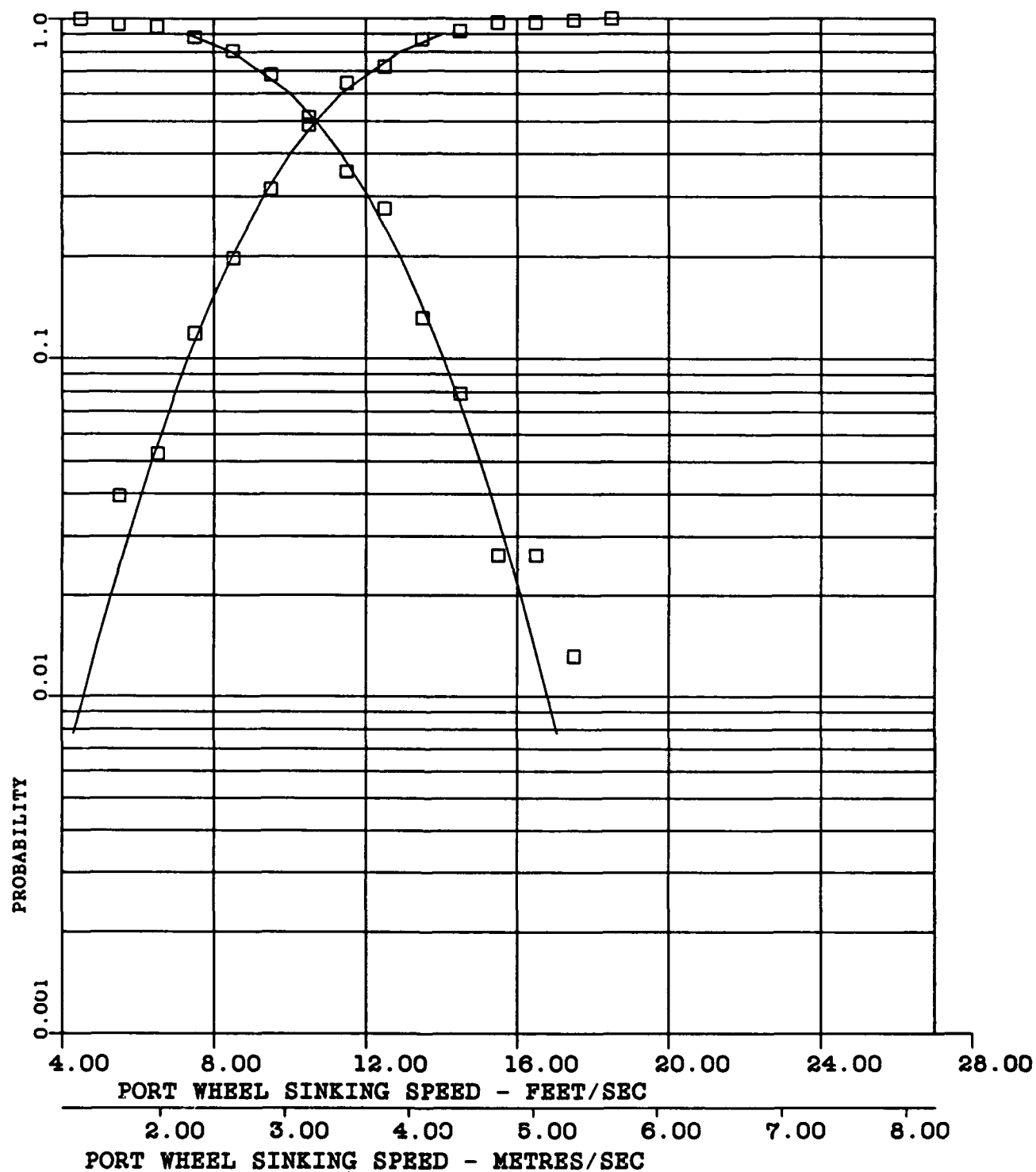


FIGURE E-8 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -10.72 FEET/SEC (3.27 METRES/SEC)

A3=0.22

S- 2.73 FEET/SEC (0.83 METRES/SEC)

A4=2.80

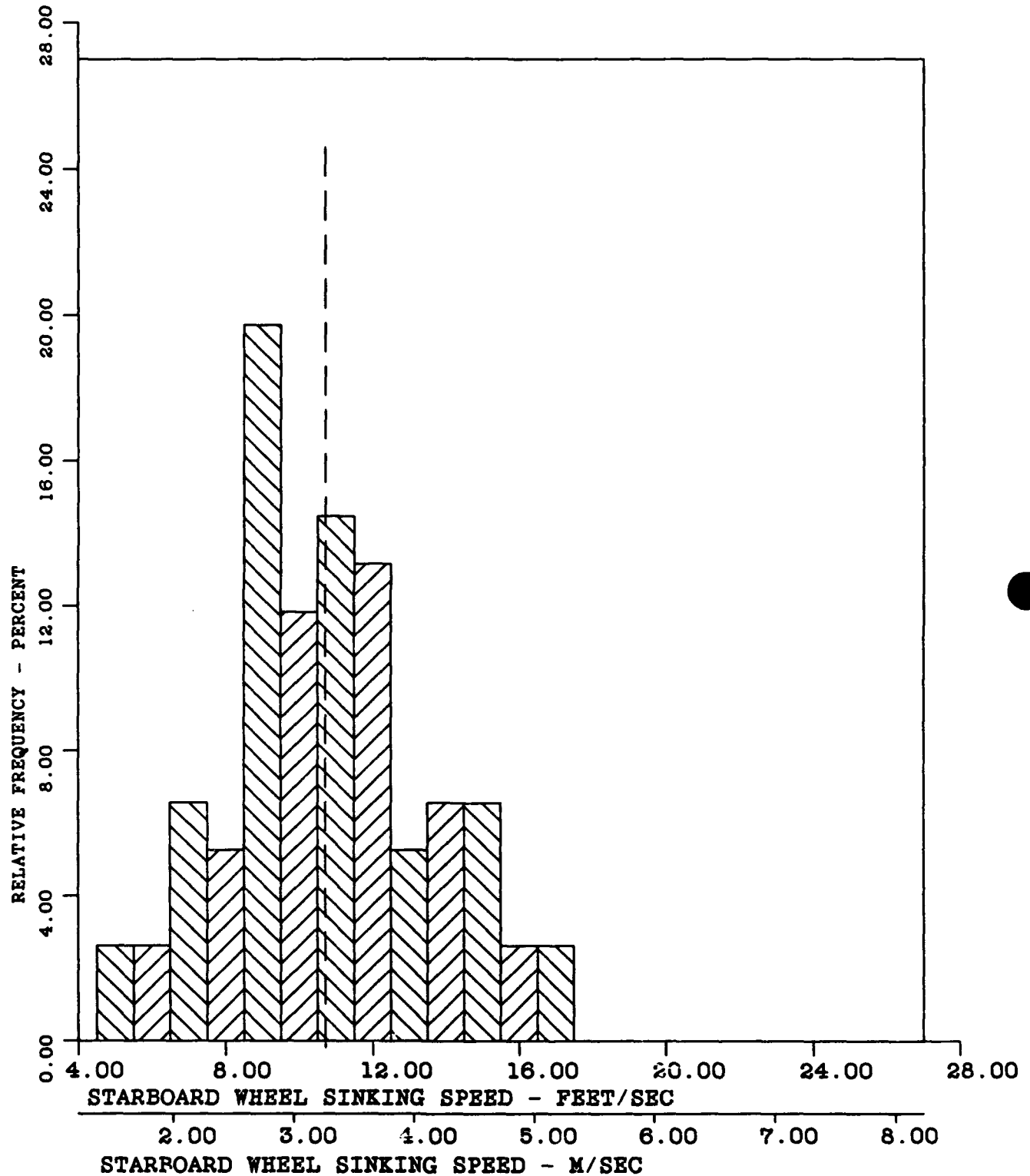


FIGURE E-9 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN



MODEL F/A-18A AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)  
N-76

$\bar{X}$ -10.72 FEET/SEC (3.27 METRES/SEC)

A3-0.22

S- 2.73 FEET/SEC (0.83 METRES/SEC)

A4-2.80

CURVE FITTED - NORMAL

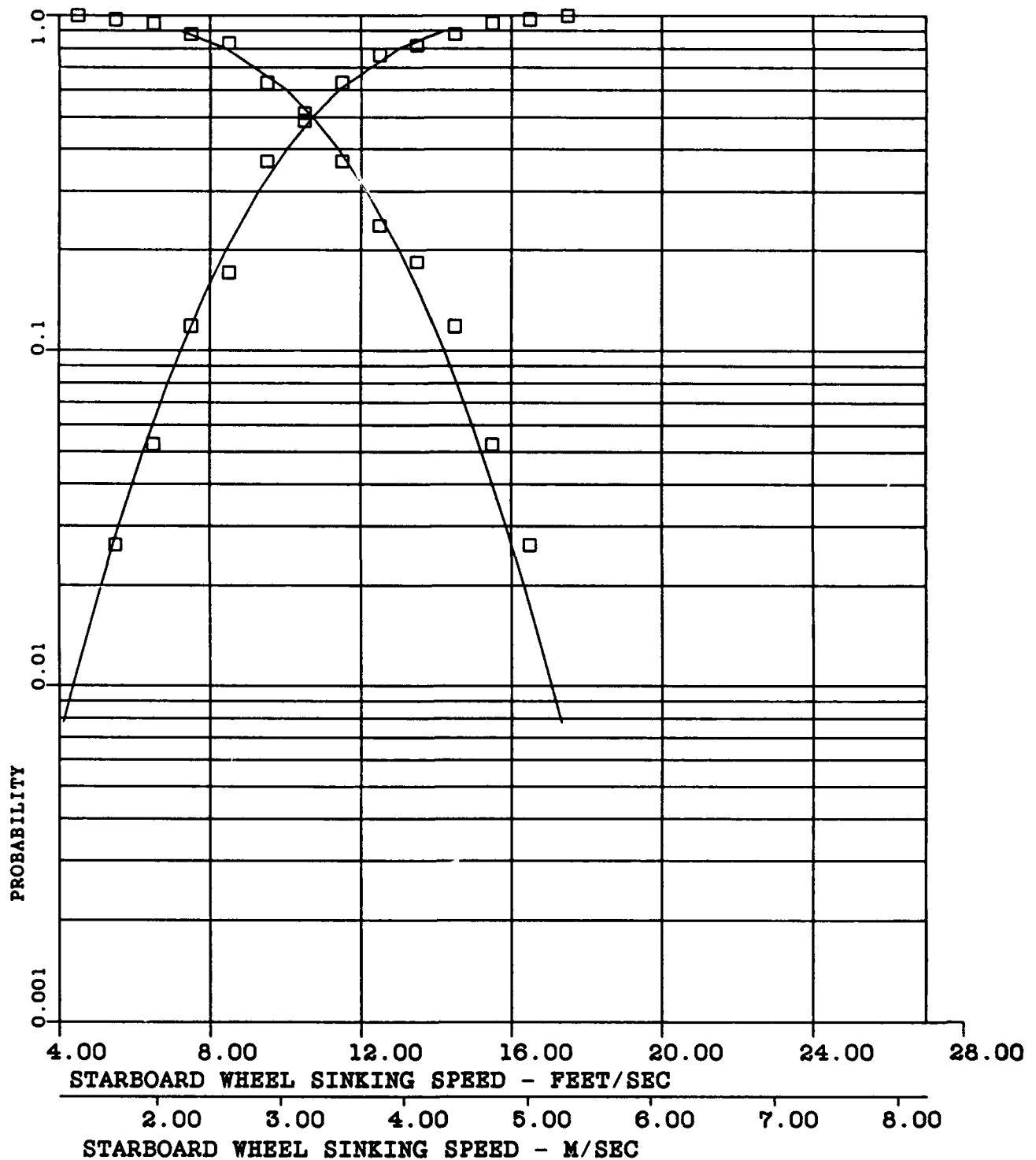


FIGURE E-10 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -10.80 FEET/SEC (3.29 METRES/SEC)

A3=0.22

S= 2.67 FEET/SEC (0.81 METRES/SEC)

A4=2.90

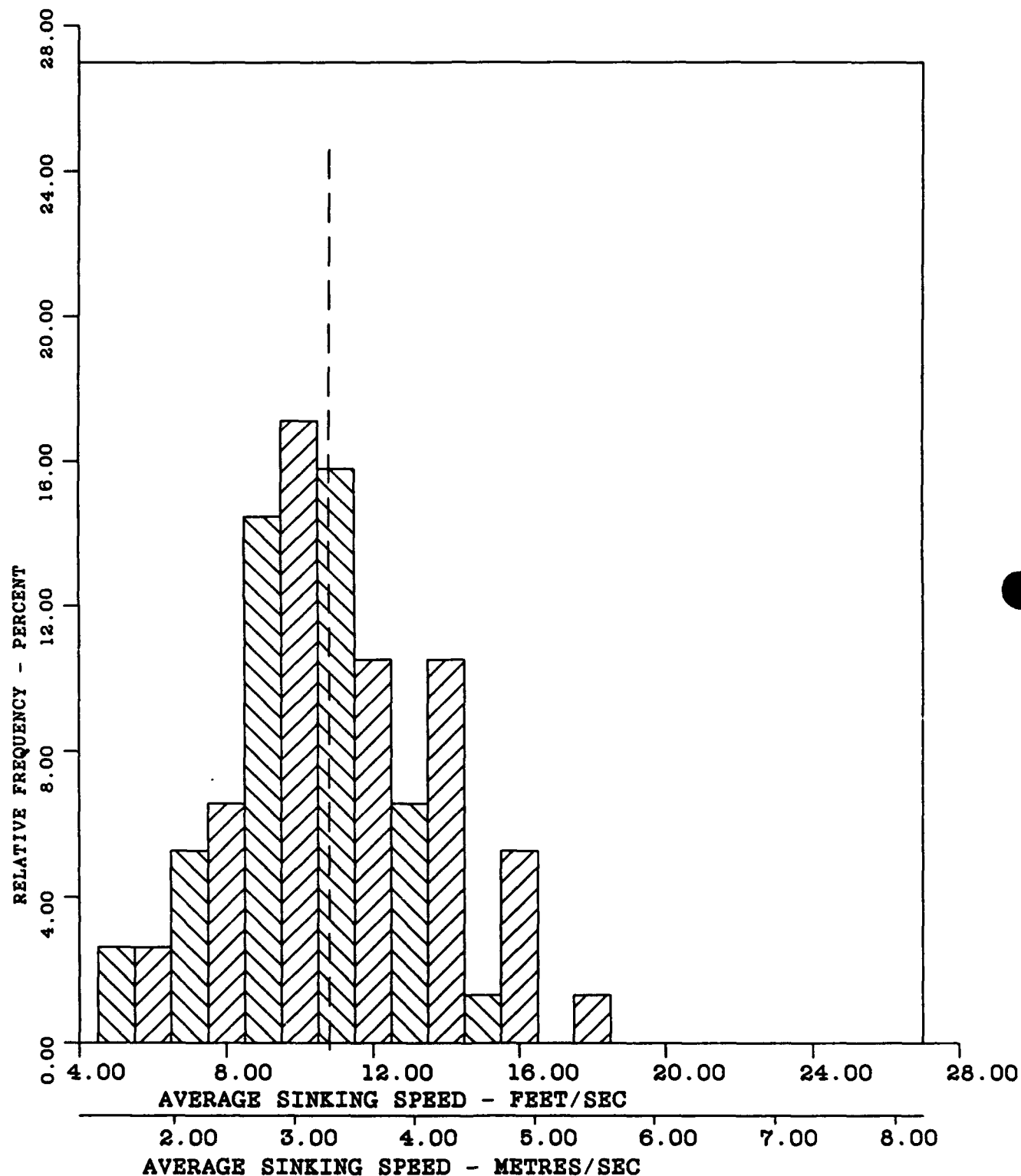


FIGURE E-11 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -10.80 FEET/SEC (3.29 METRES/SEC)

A3=0.22

S- 2.67 FEET/SEC (0.81 METRES/SEC)

A4=2.90

CURVE FITTED - NORMAL

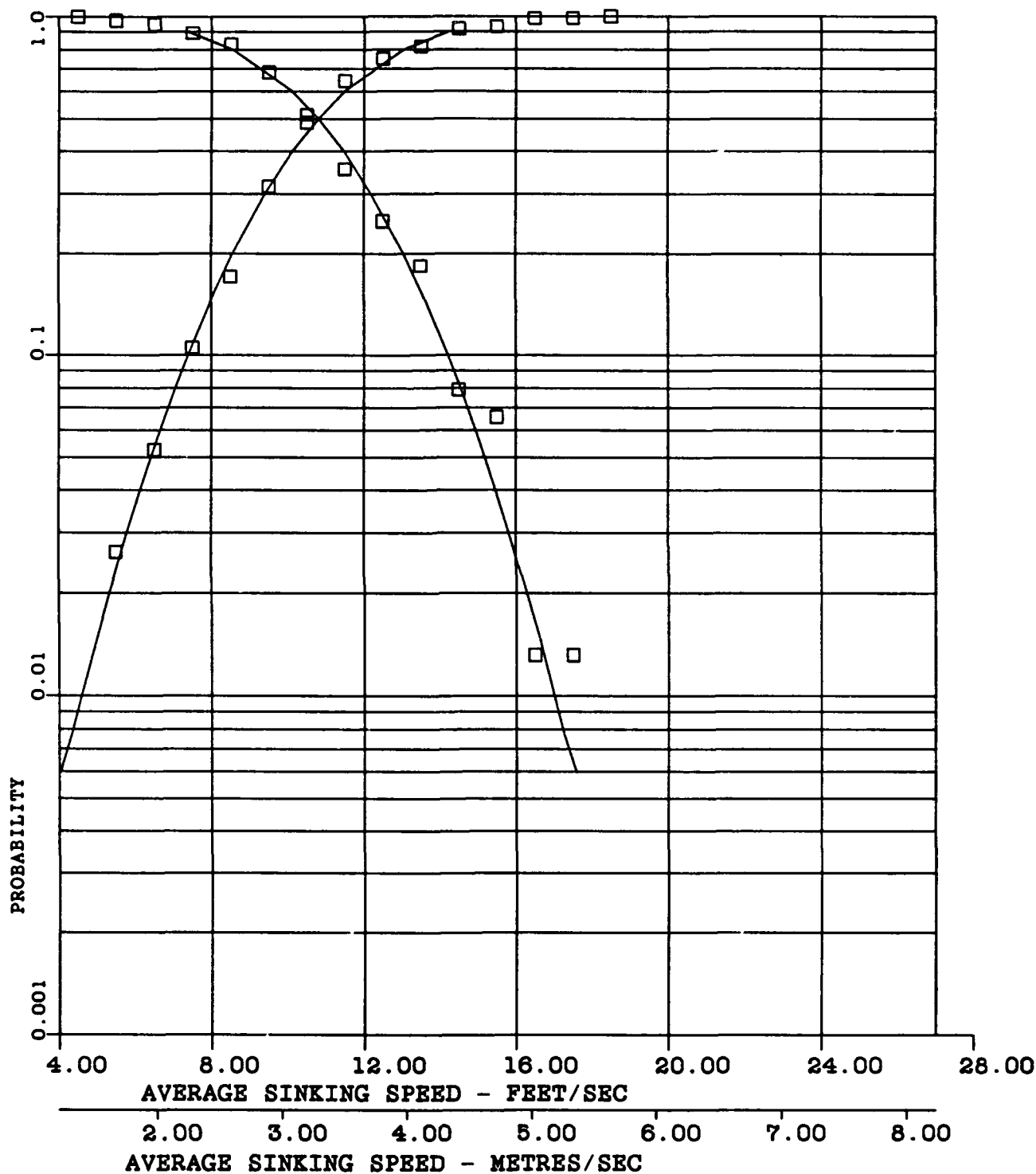


FIGURE E-12 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-2

 $\bar{X}$ =9.50 FEET/SEC (2.89 METRES/SEC)

A3=0.00

S= 1.14 FEET/SEC (0.35 METRES/SEC)

A4=1.00

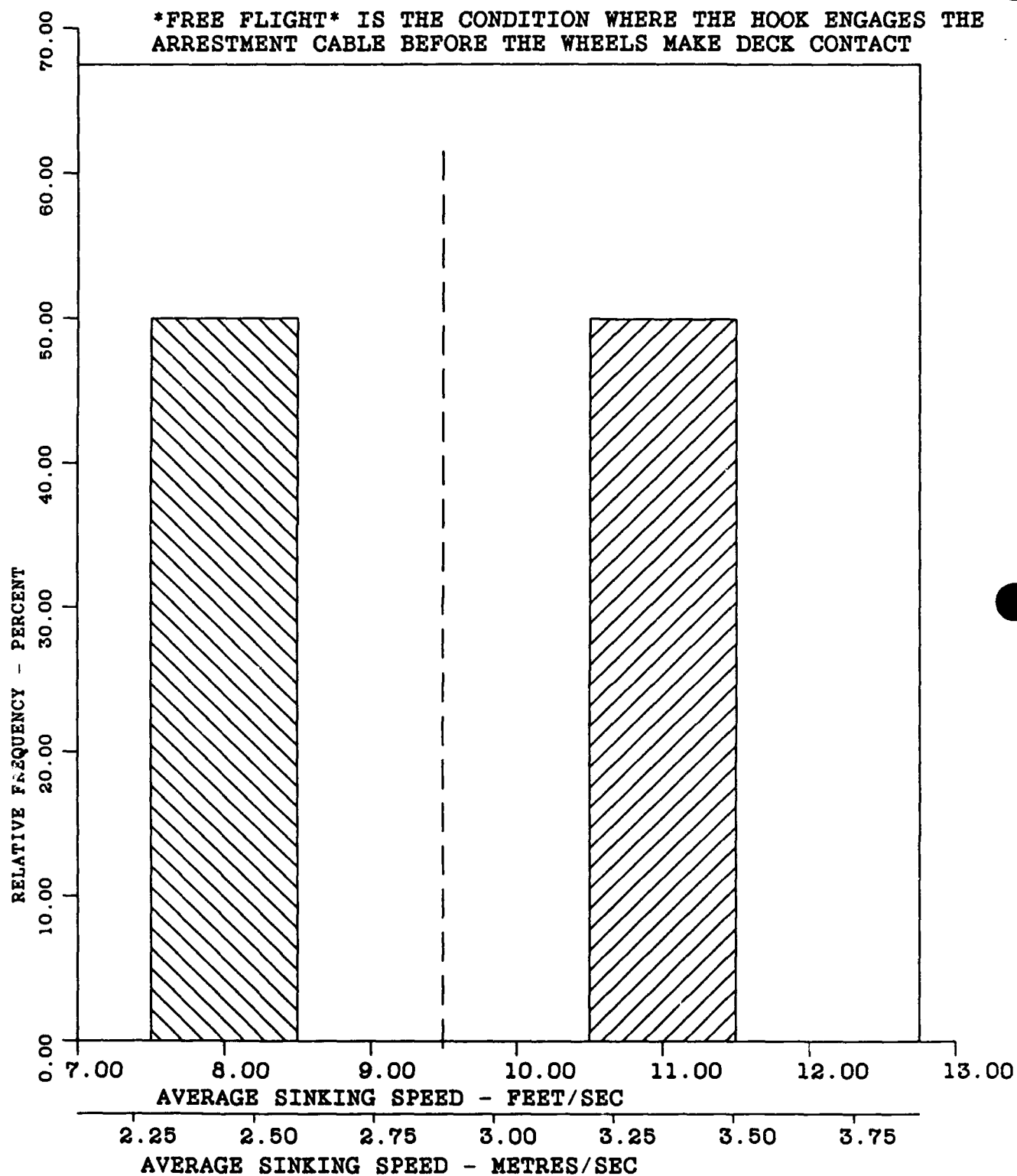


FIGURE E-13 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-2

 $\bar{X}$ -9.50 FEET/SEC (2.89 METRES/SEC)

A3=0.00

S= 1.14 FEET/SEC (0.35 METRES/SEC)

A4=1.00

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

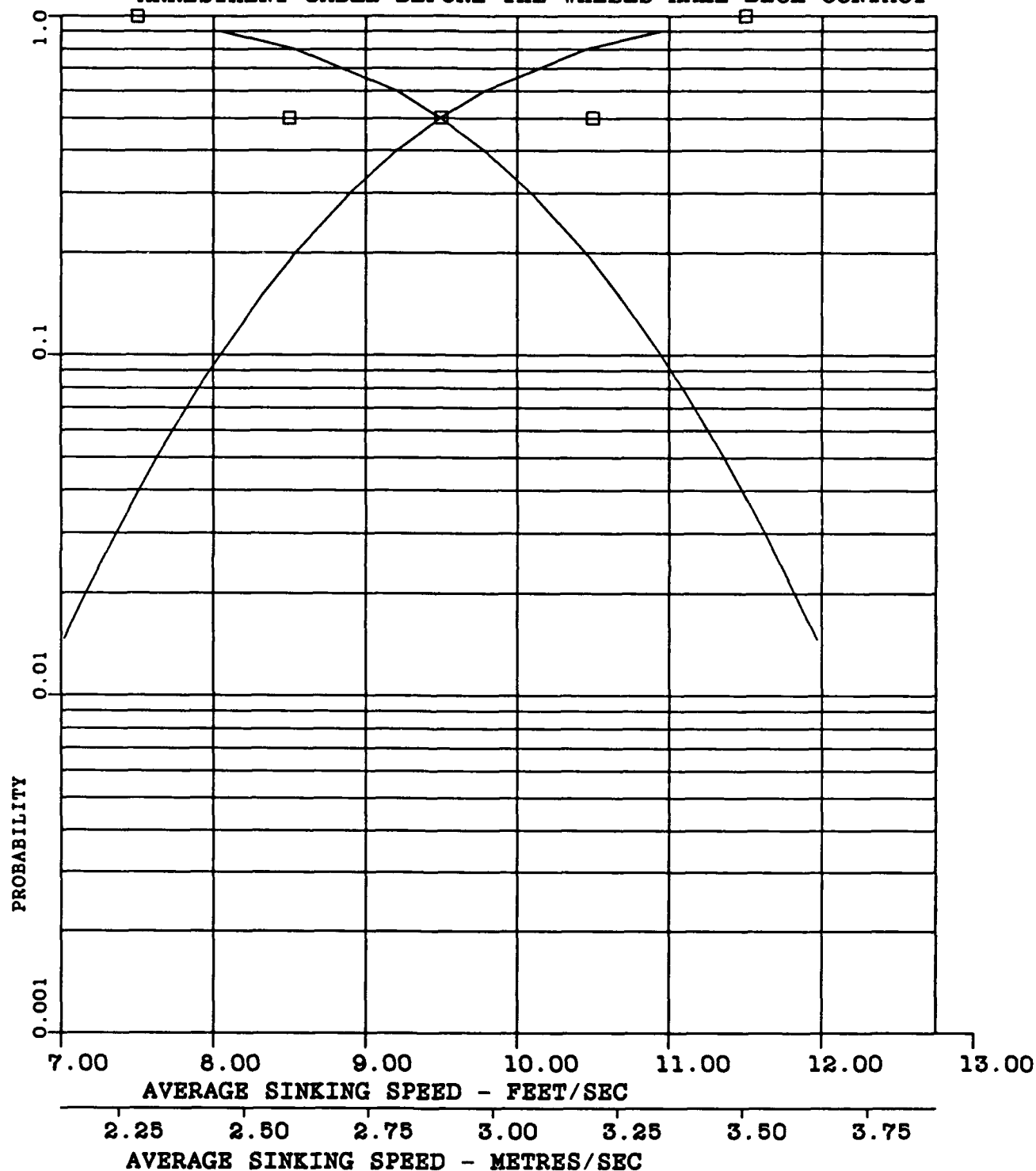


FIGURE E-14 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -1.06

S- 0.11

A3-0.34

A4-2.32

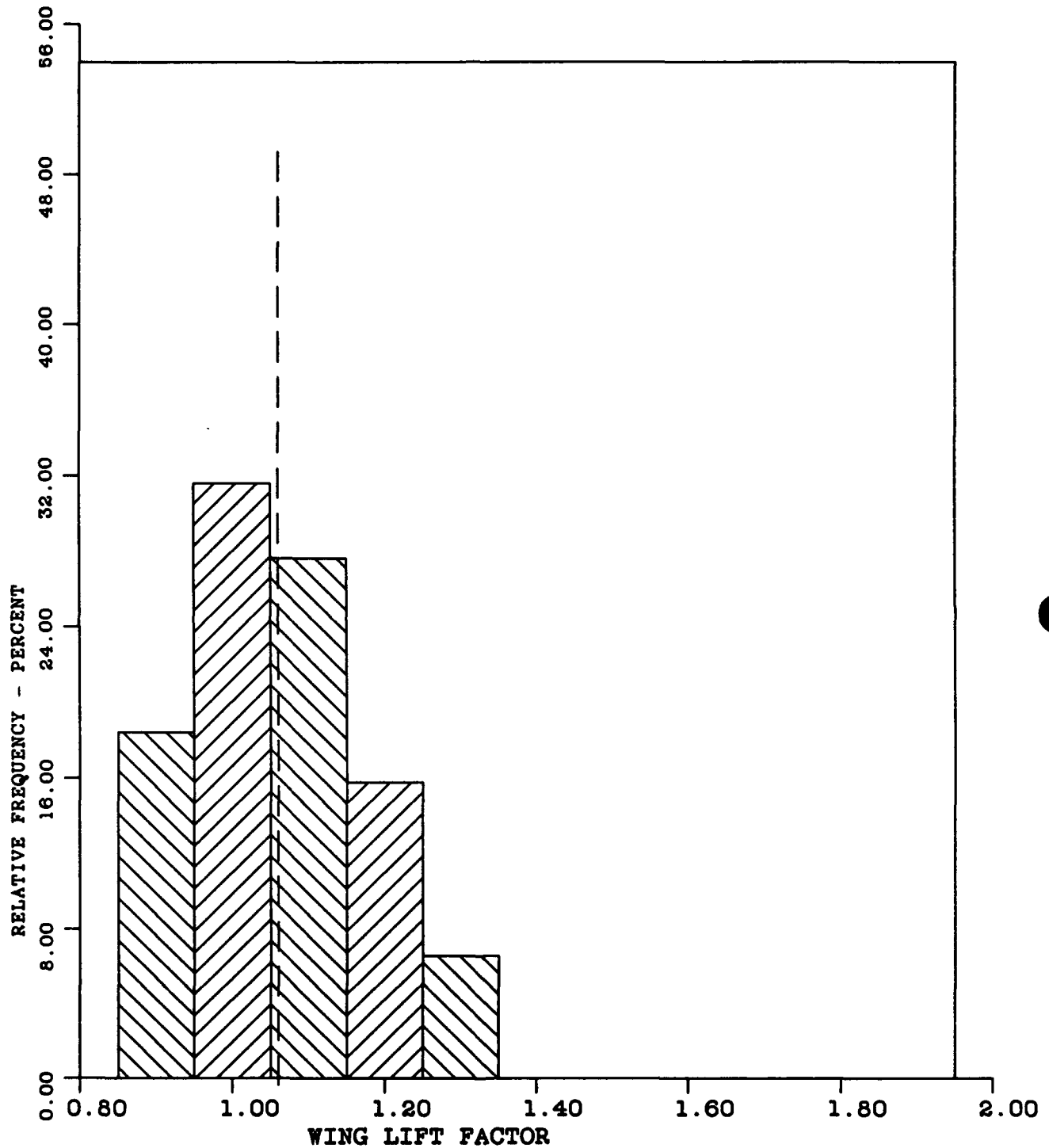


FIGURE E-15 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=76

 $\bar{X}$ -1.06

S= 0.11

CURVE FITTED - NORMAL

A3-0.34

A4-2.32

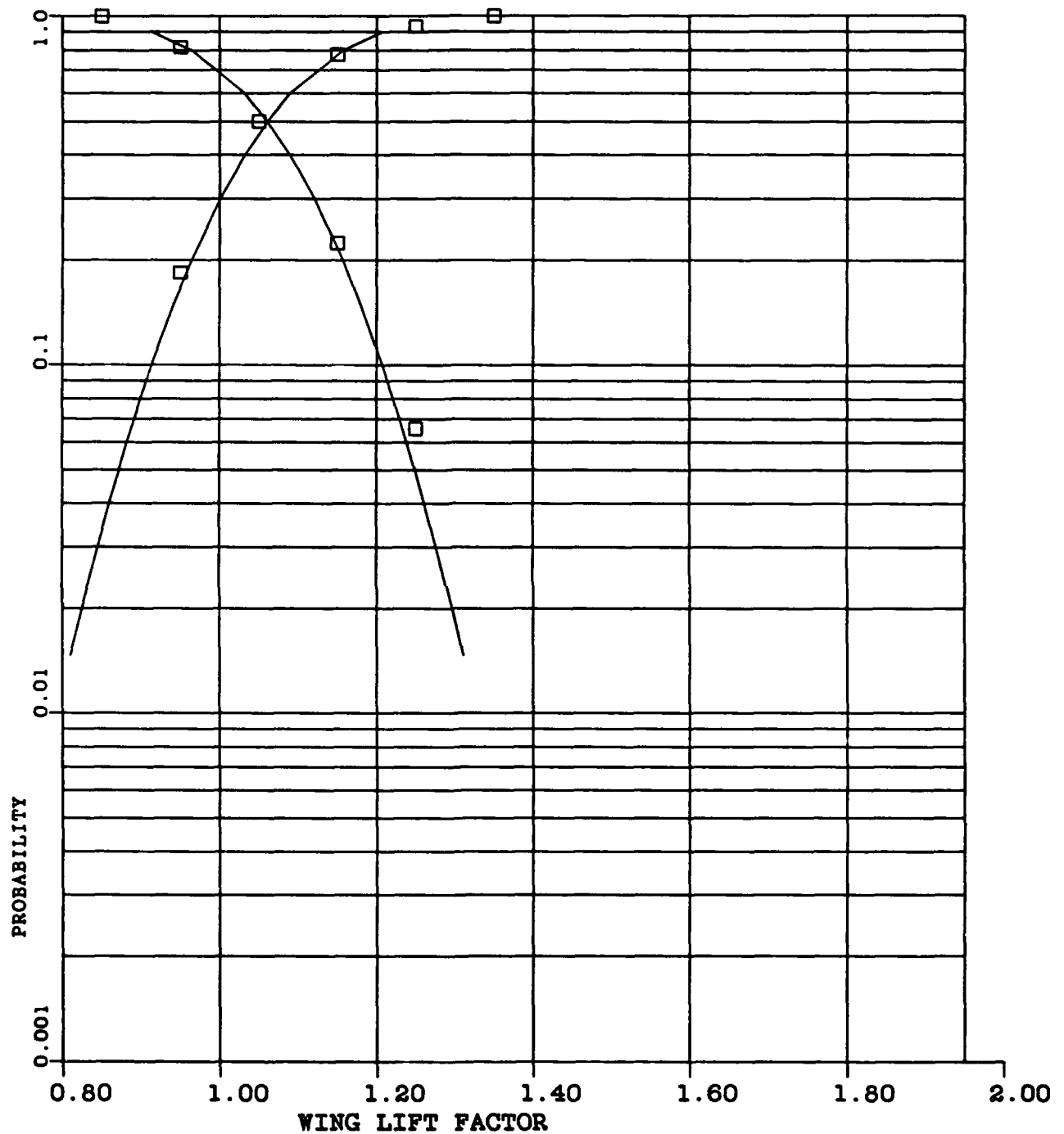


FIGURE E-16 PROBABILITY DISTRIBUTION OF WING LIFT FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-2

 $\bar{X}=1.05$ 

S= 0.05

A3=-0.00

A4=1.00

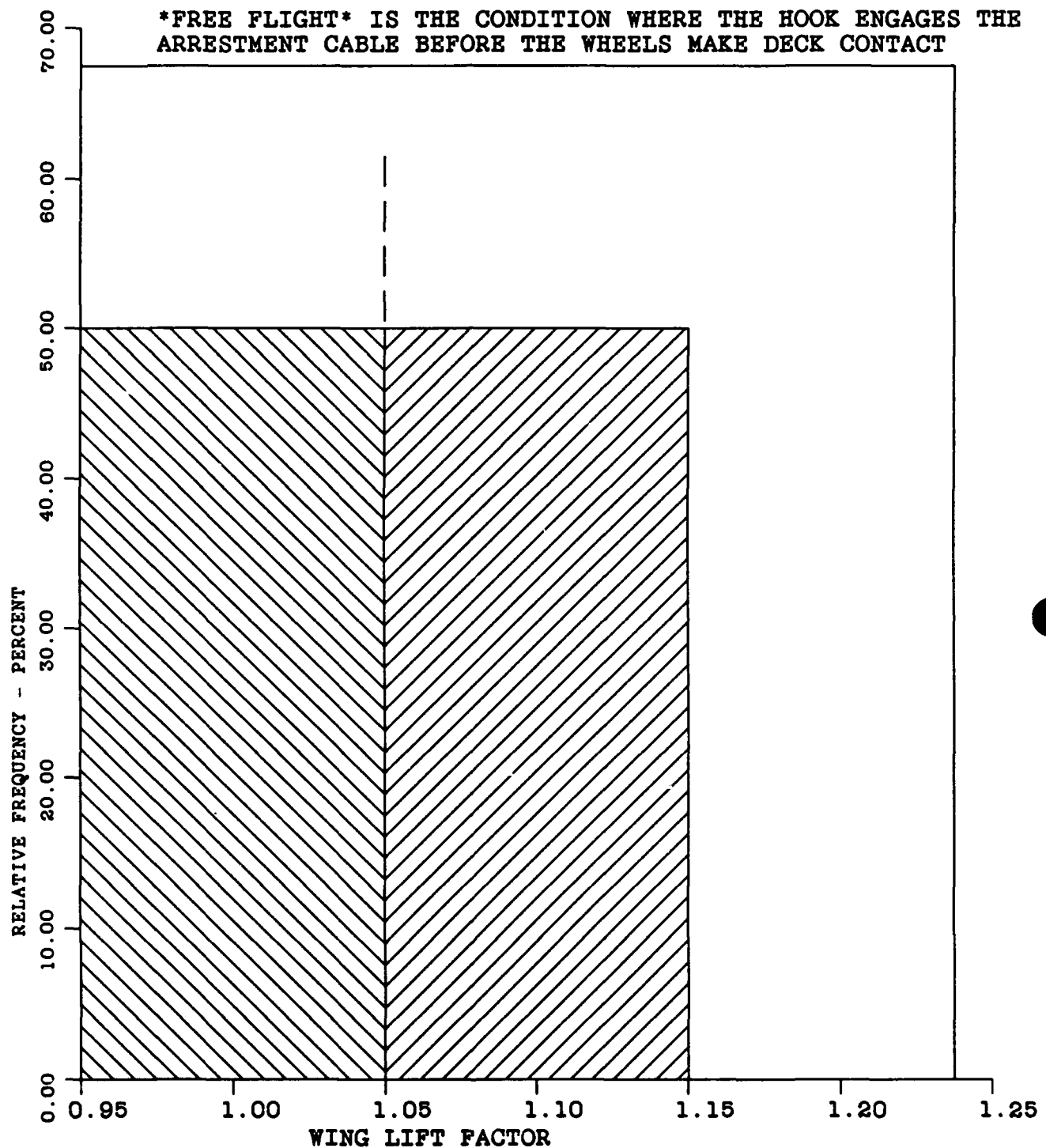


FIGURE E-17 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-2

 $\bar{X}=1.05$ 

S= 0.05

A3=-0.00

A4=1.00

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

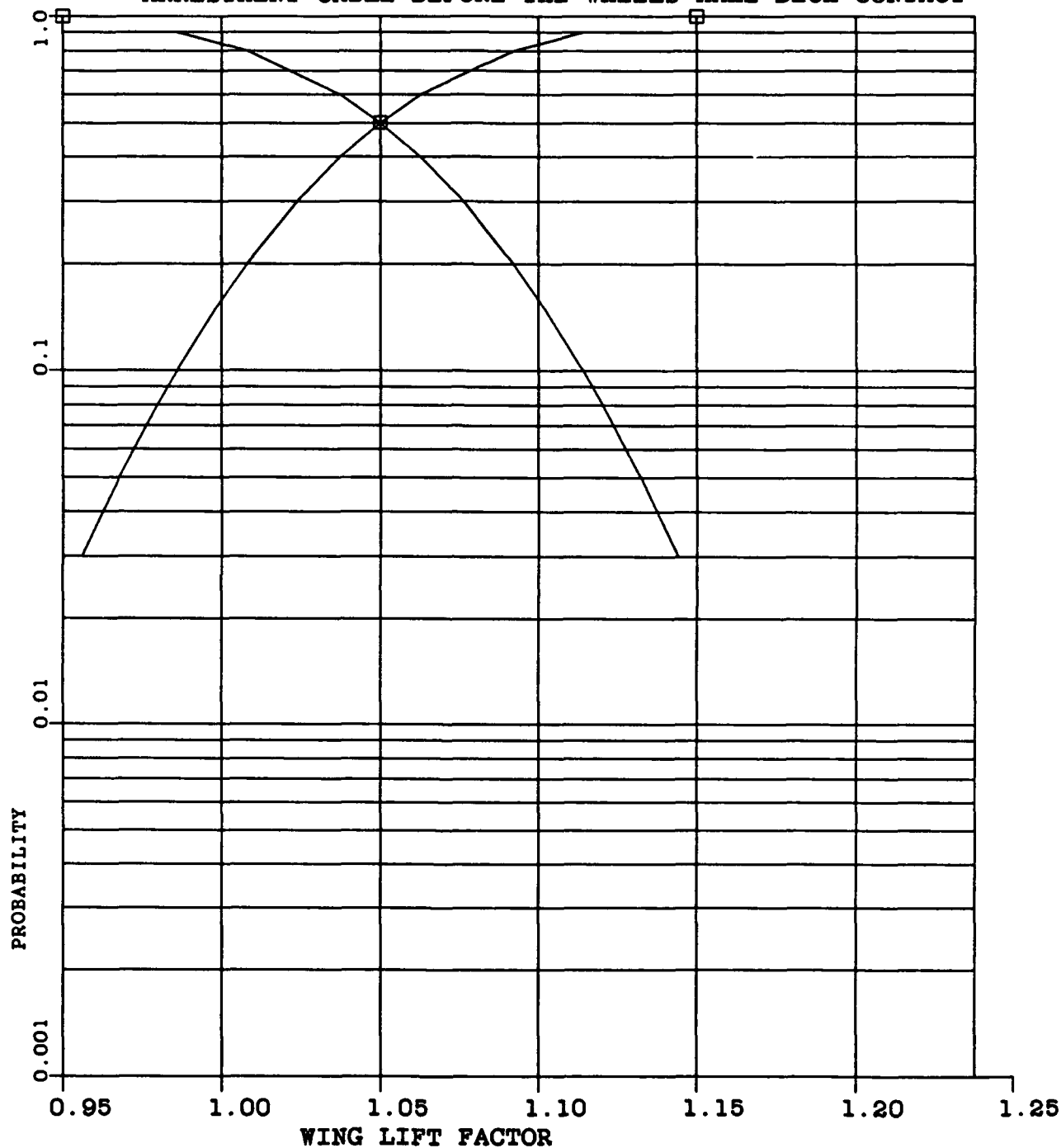


FIGURE E-18 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -4.62 DEGREES (0.081 RADIANS)

A3--0.45

S- 0.86 DEGREES (0.015 RADIANS)

A4-4.69

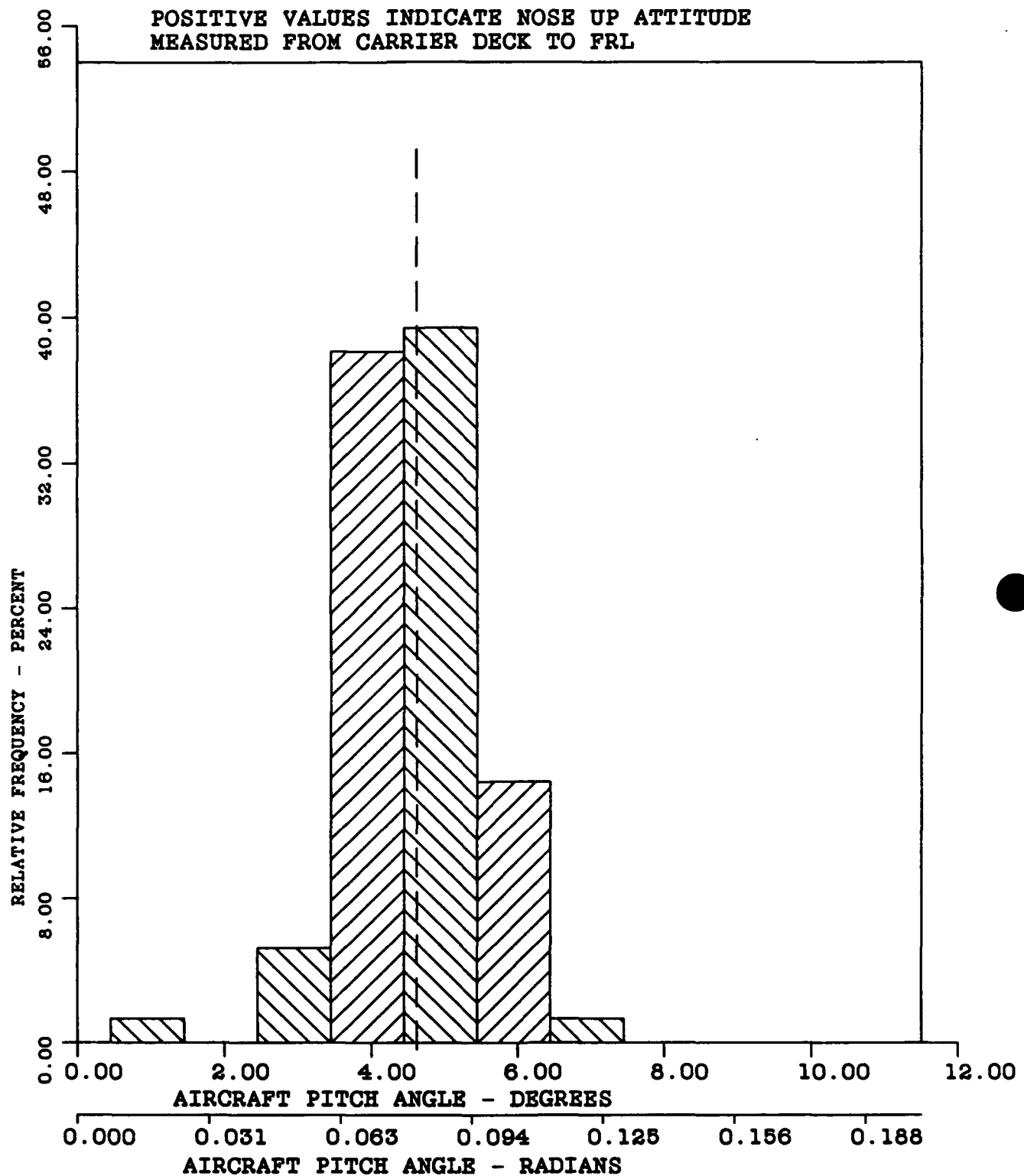


FIGURE E-19 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ =4.62 DEGREES (0.081 RADIANS)

A3=-0.45

S= 0.86 DEGREES (0.015 RADIANS)

A4=4.69

CURVE FITTED - NORMAL

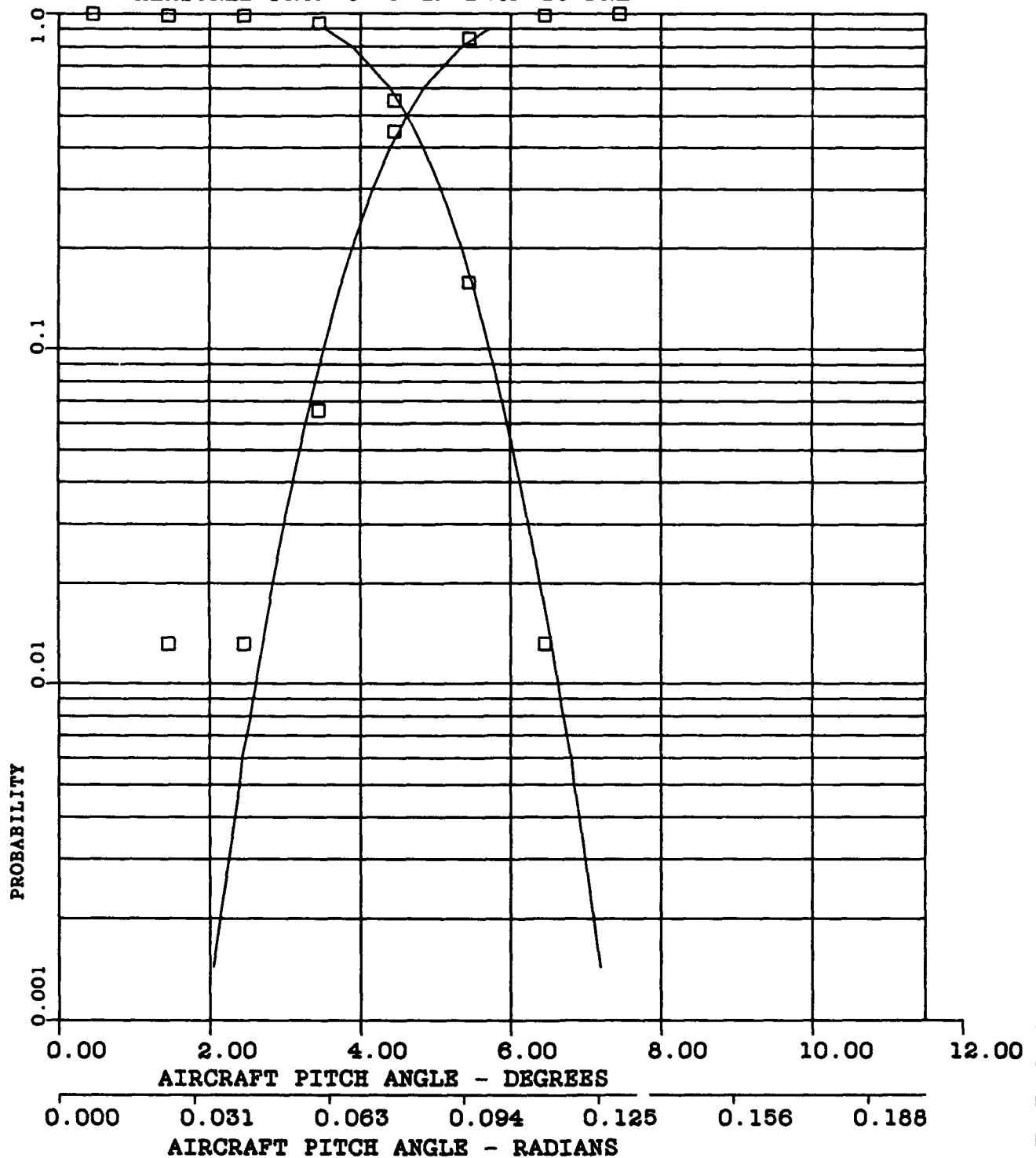
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE E-20 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-2

$\bar{X}$ -5.95 DEGREES (0.104 RADIANS)

A3-0.00

S- 0.35 DEGREES (0.006 RADIANS)

A4-1.00

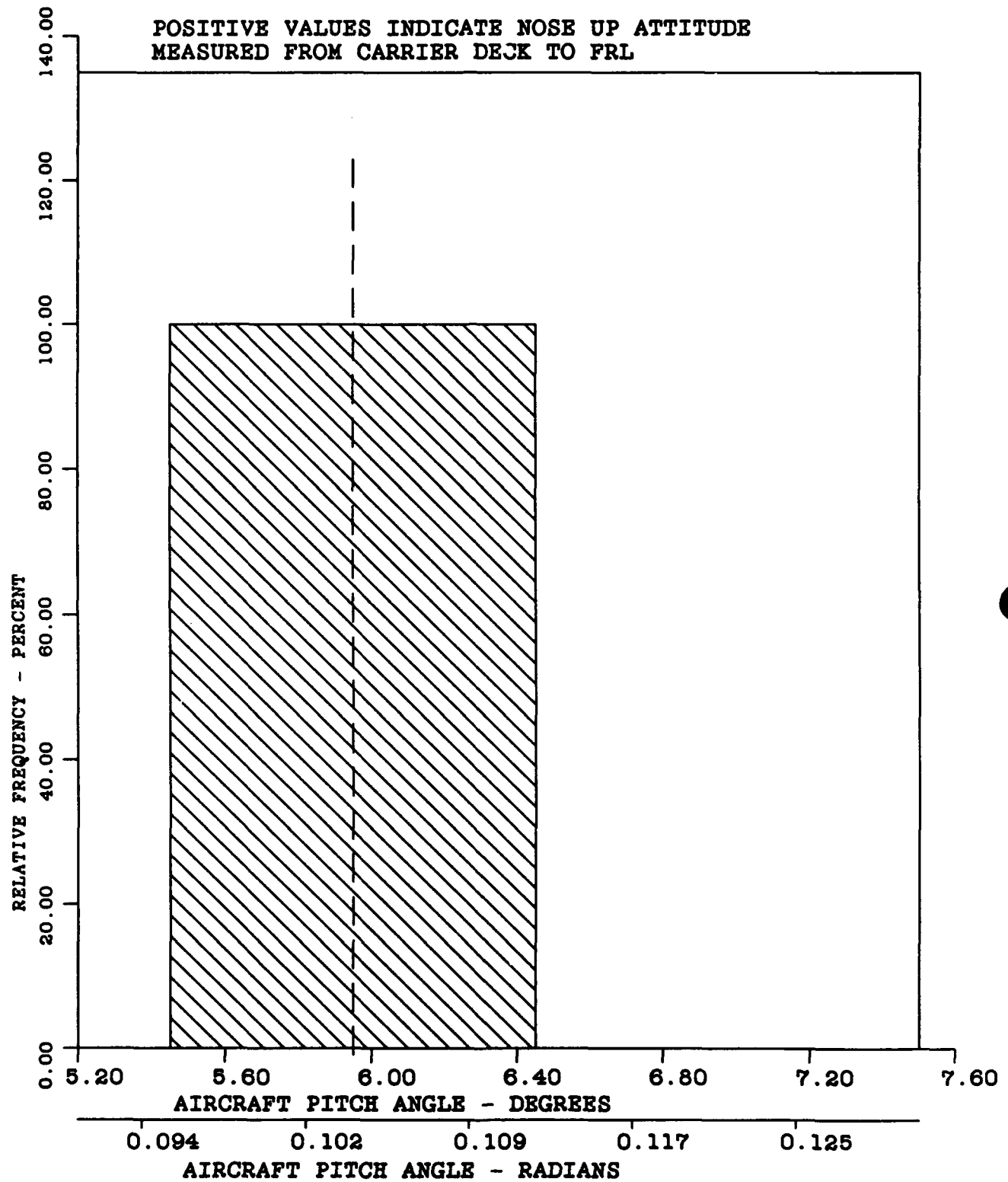


FIGURE E-21 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-2

 $\bar{X}$ -5.95 DEGREES (0.104 RADIANS)

A3-0.00

S- 0.35 DEGREES (0.006 RADIANS)

A4-1.00

CURVE FITTED - NORMAL

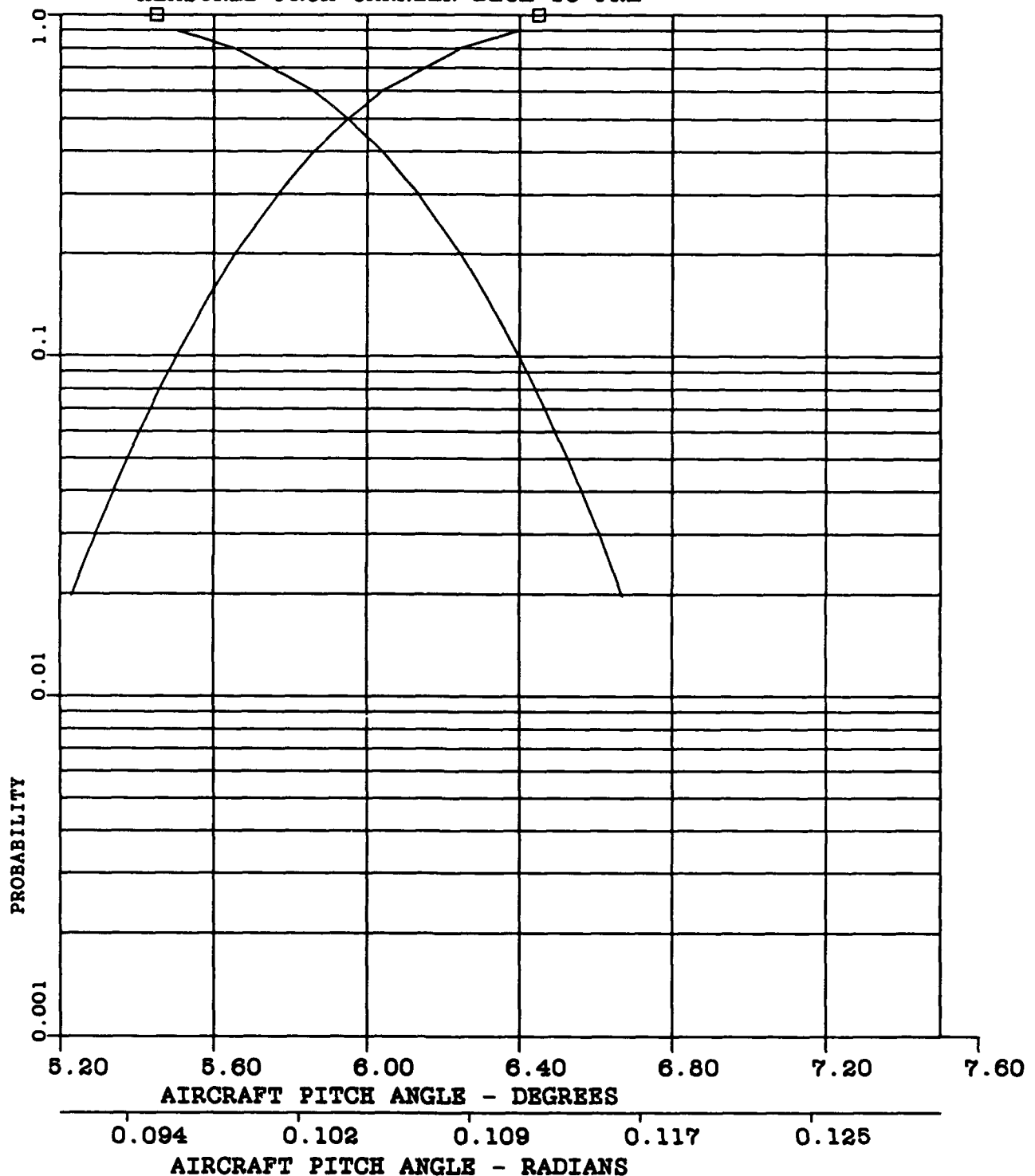
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE E-22 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

$\bar{X}$ -0.13 DEGREES (0.002 RADIANS)

S- 2.61 DEGREES (0.046 RADIANS)

A3--0.62

A4-5.58

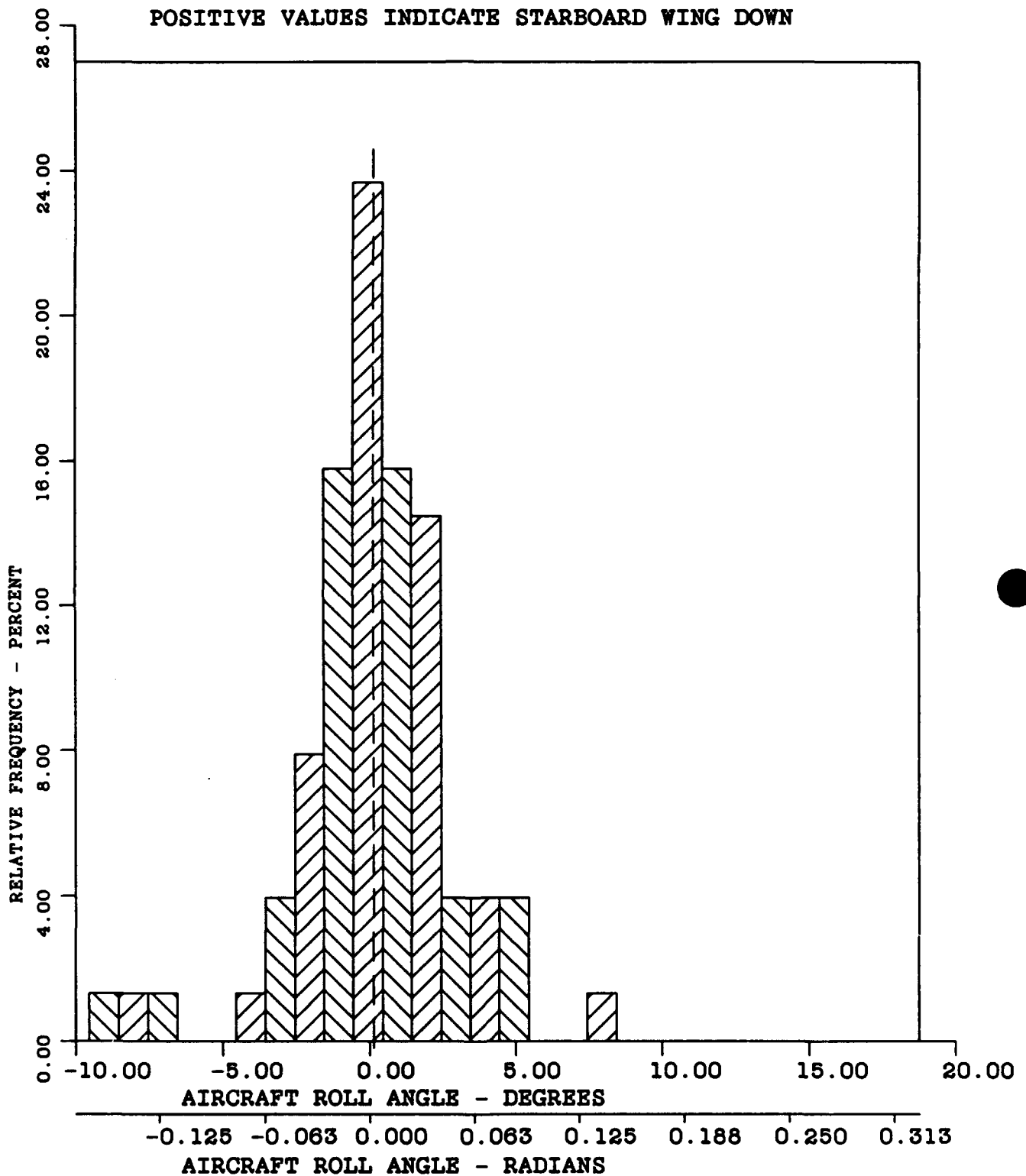


FIGURE E-23 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ =0.13 DEGREES (0.002 RADIANS)

A3=-0.62

S= 2.61 DEGREES (0.046 RADIANS)

A4=5.58

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

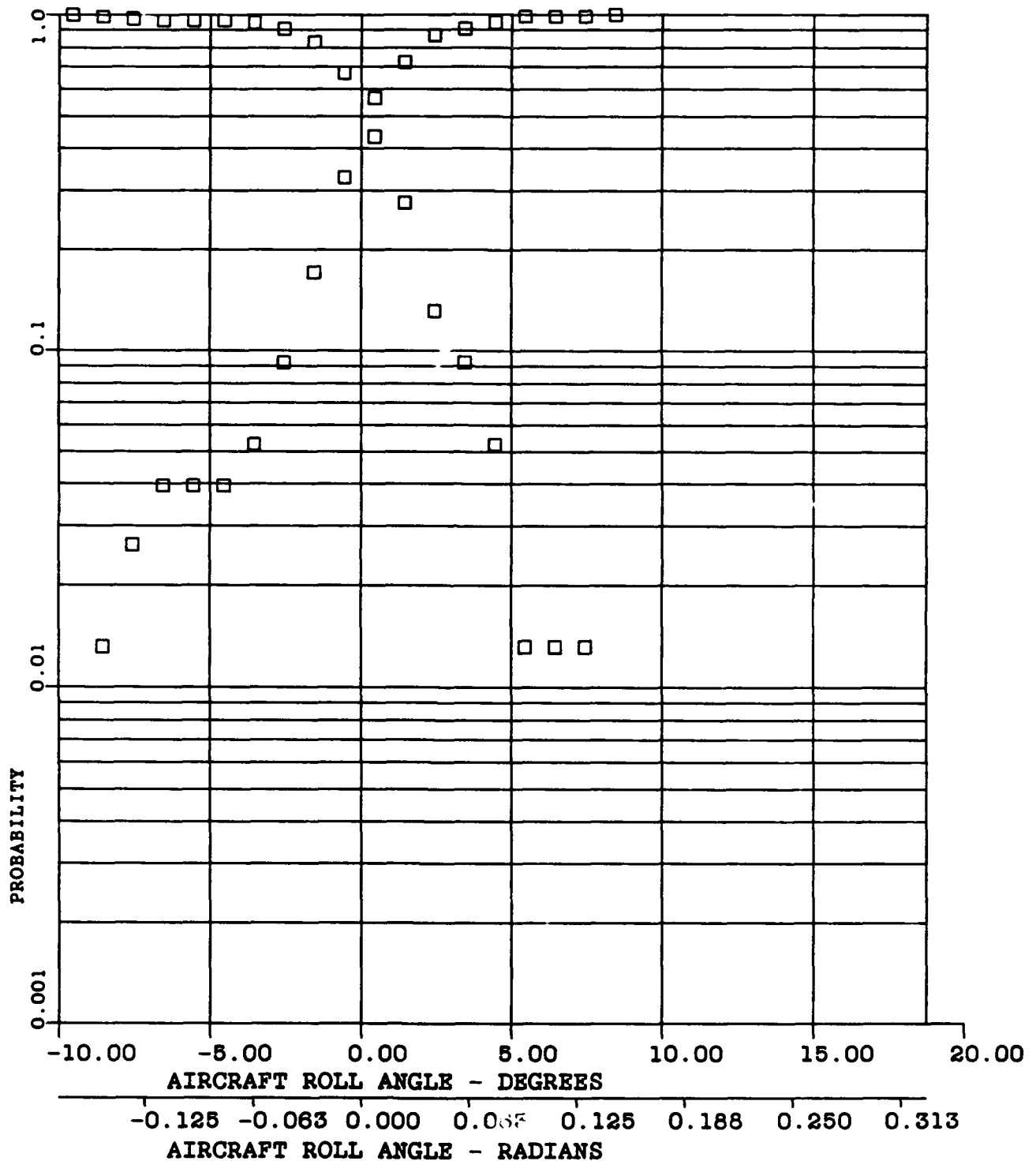


FIGURE E-24 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-2

 $\bar{X}$ -1.80 DEGREES (0.031 RADIANS)

A3--0.00

S- 0.40 DEGREES (0.007 RADIANS)

A4-1.00

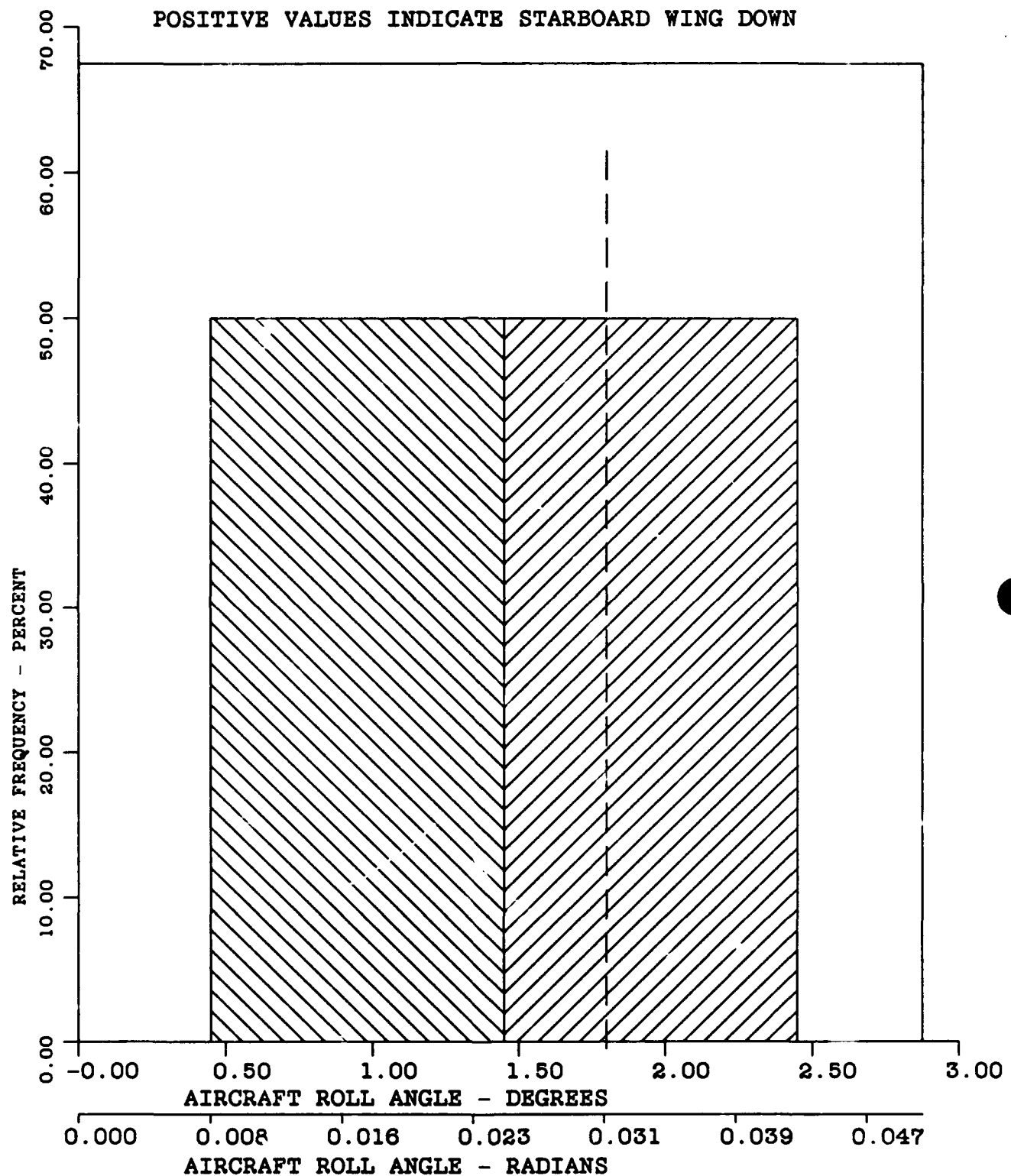


FIGURE E-25 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=2  $\bar{X}$ =1.80 DEGREES (0.031 RADIANS)

A3=-0.00

S= 0.40 DEGREES (0.007 RADIANS)

A4=1.00

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

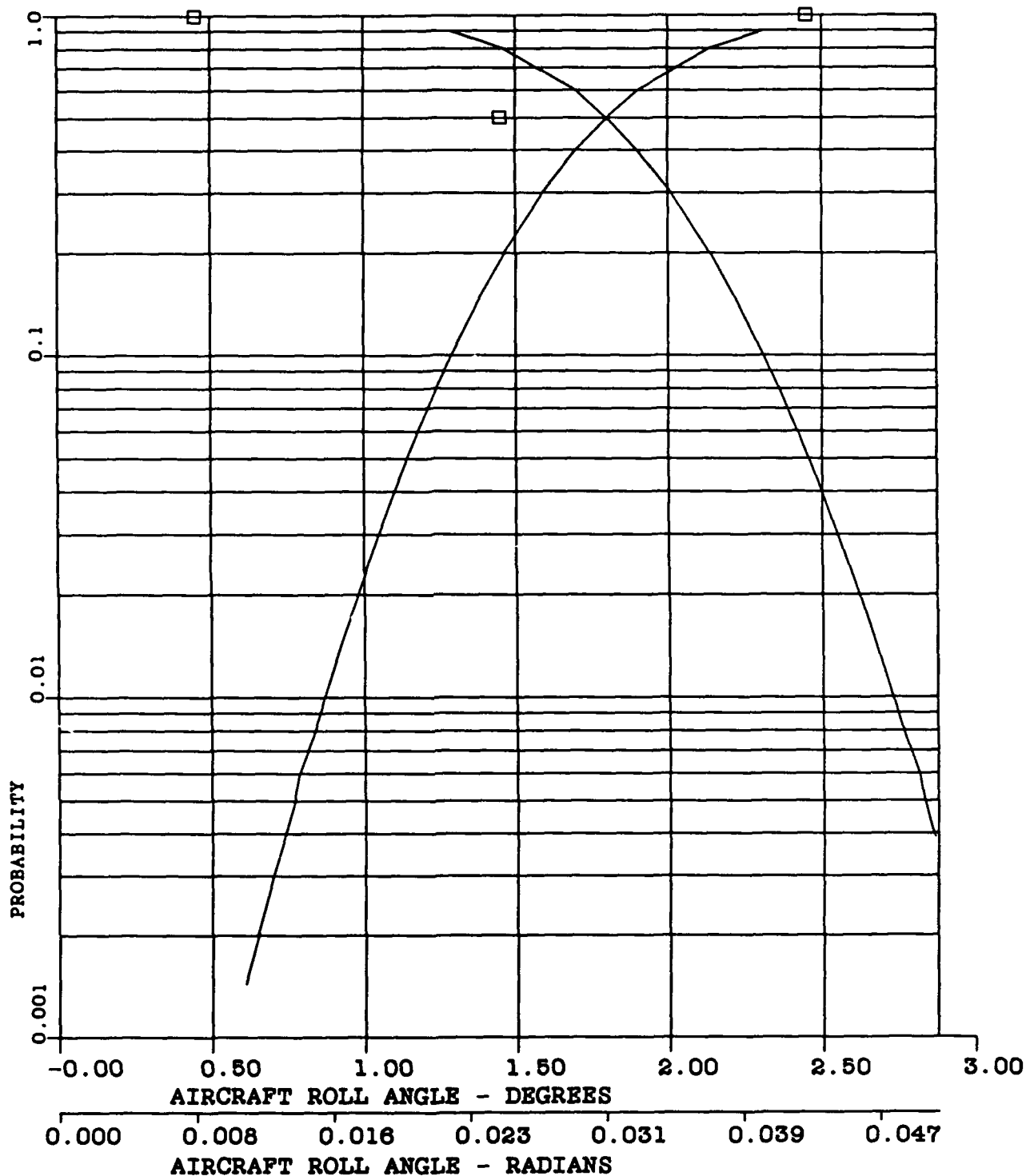


FIGURE E-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -251.53 FEET (76.67 METRES)

A3--0.11

S- 39.35 FEET (11.99 METRES)

A4-2.65

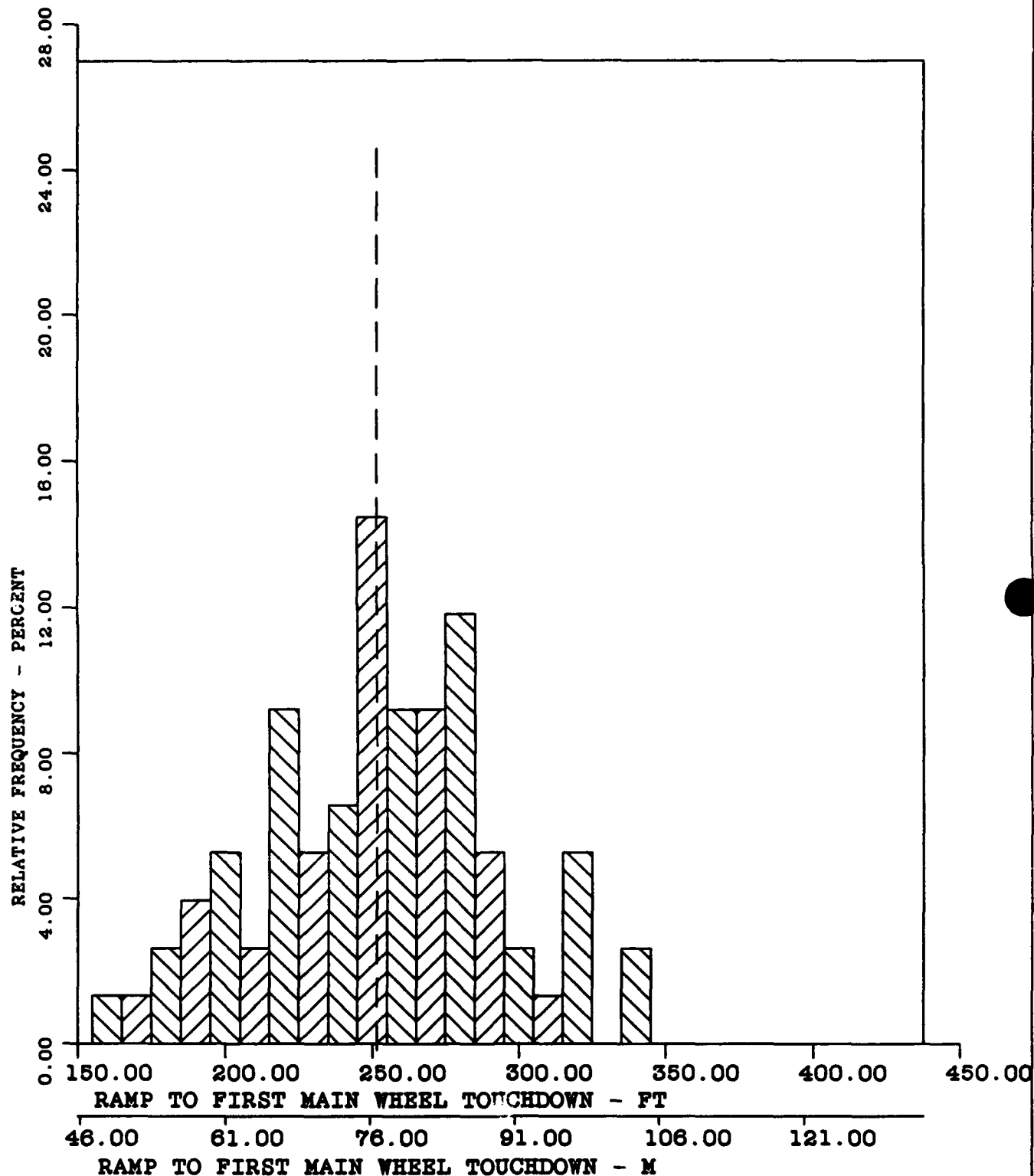


FIGURE E-27 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -251.53 FEET (76.67 METRES)

A3--0.11

S- 39.35 FEET (11.99 METRES)

A4-2.65

CURVE FITTED - NORMAL

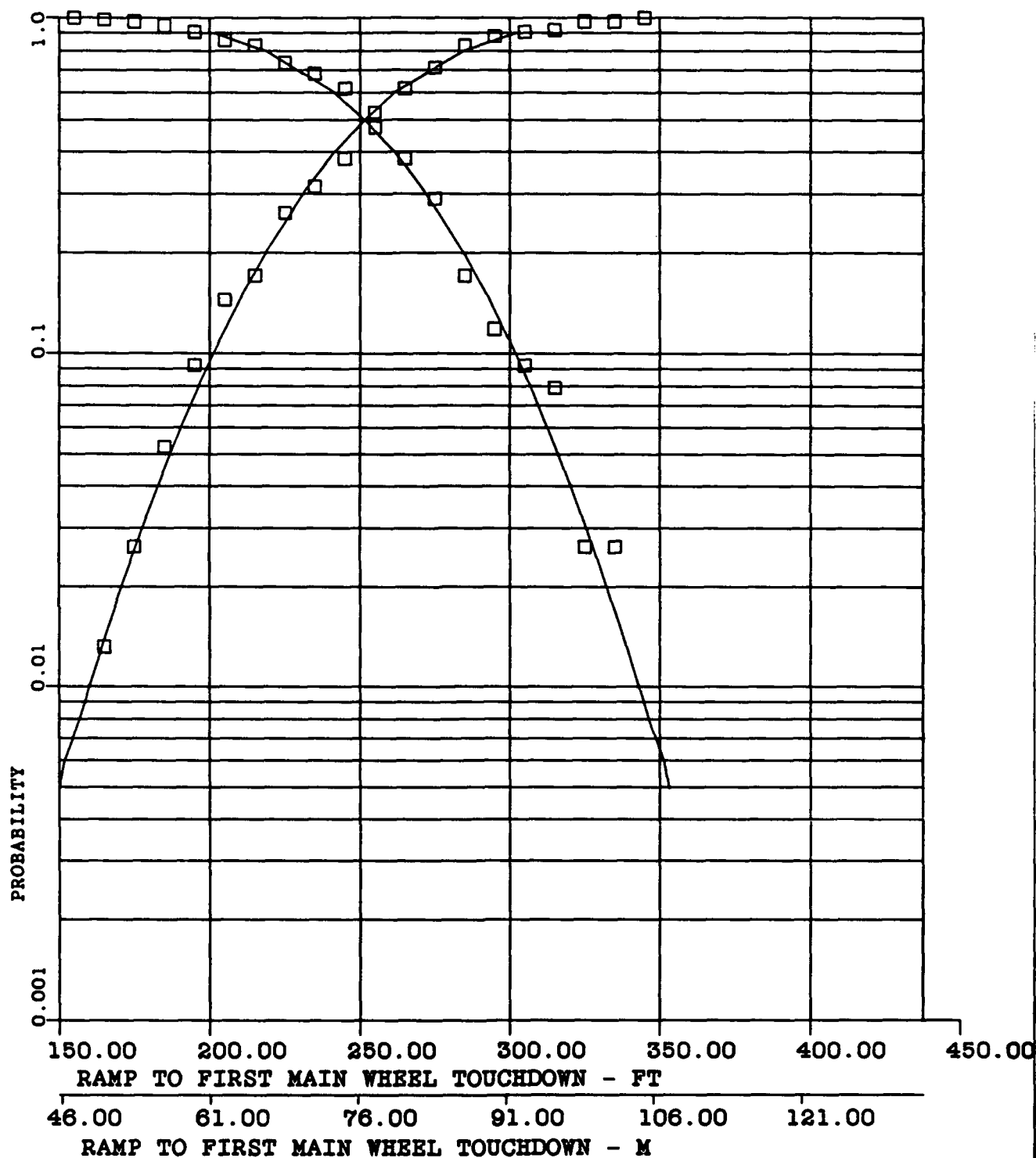


FIGURE E-28 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ --12.47 FEET (-3.80 METRES)

A3--0.07

S= 4.38 FEET (1.33 METRES)

A4-3.40

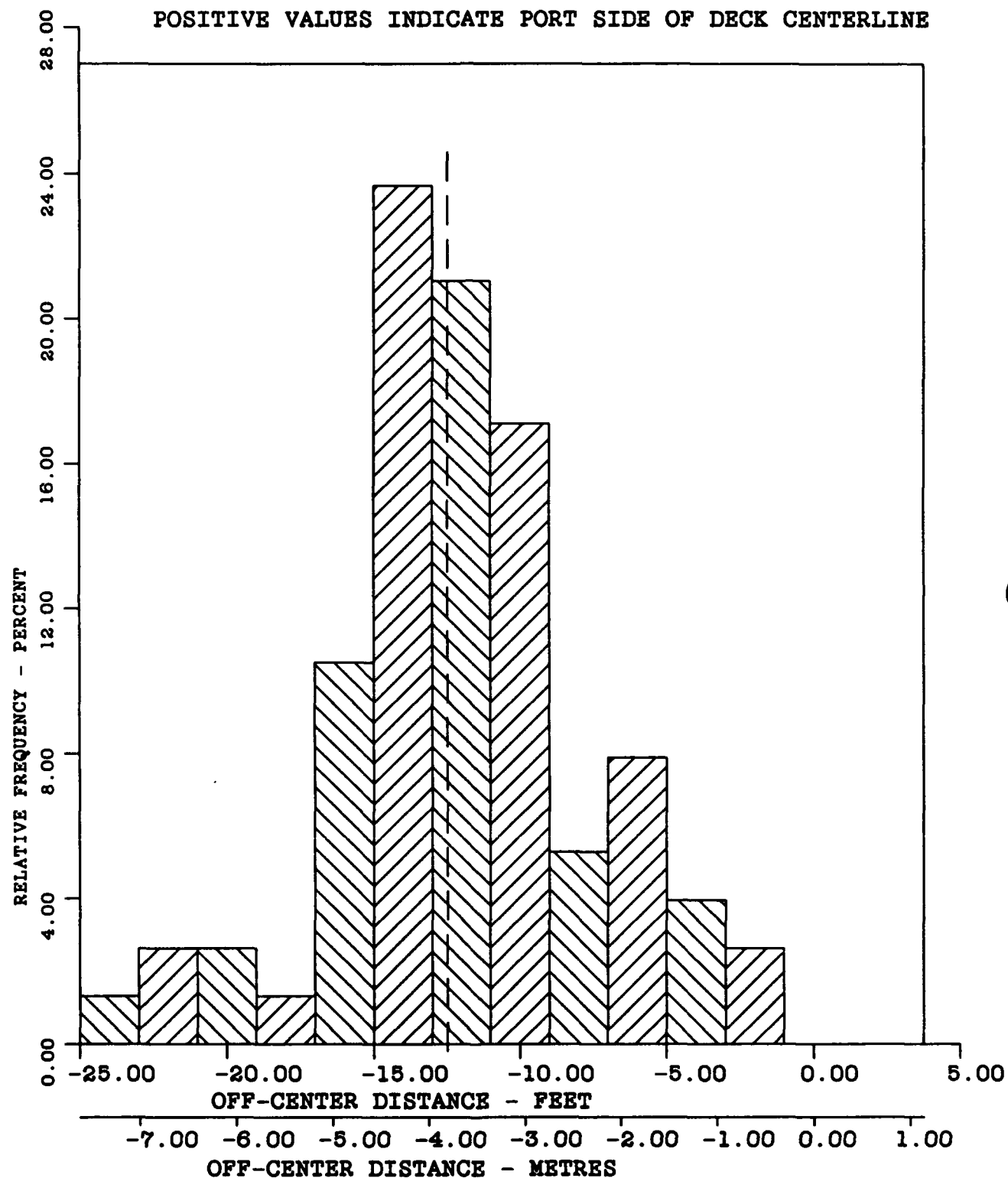


FIGURE E-29 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=76

 $\bar{X}$  = -12.47 FEET (-3.80 METRES)

A3 = -0.07

S = 4.38 FEET (1.33 METRES)

A4 = 3.40

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

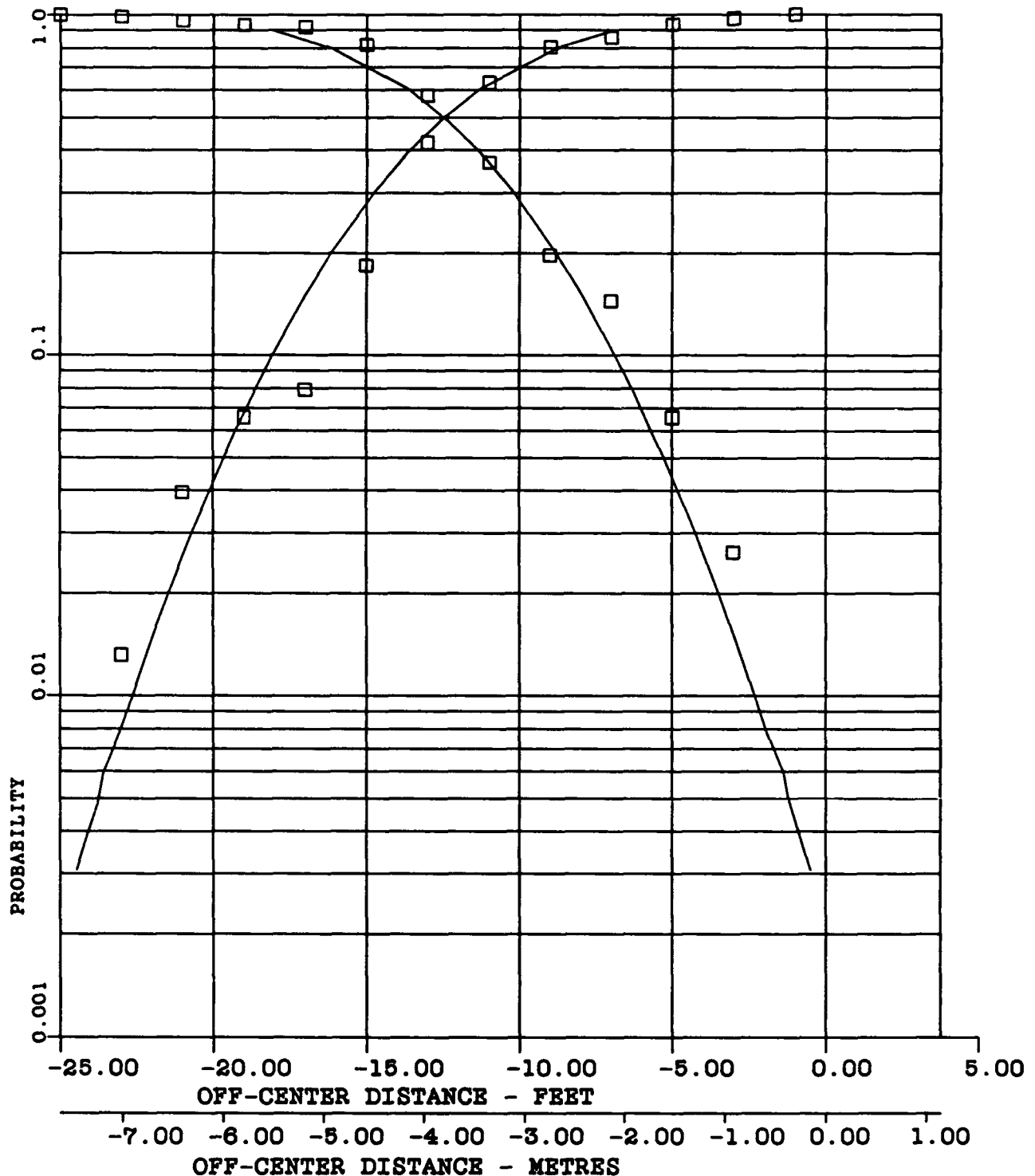


FIGURE E-30 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-62

 $\bar{X}$ -2.87

A3-0.22

S- 0.75

A4-1.80

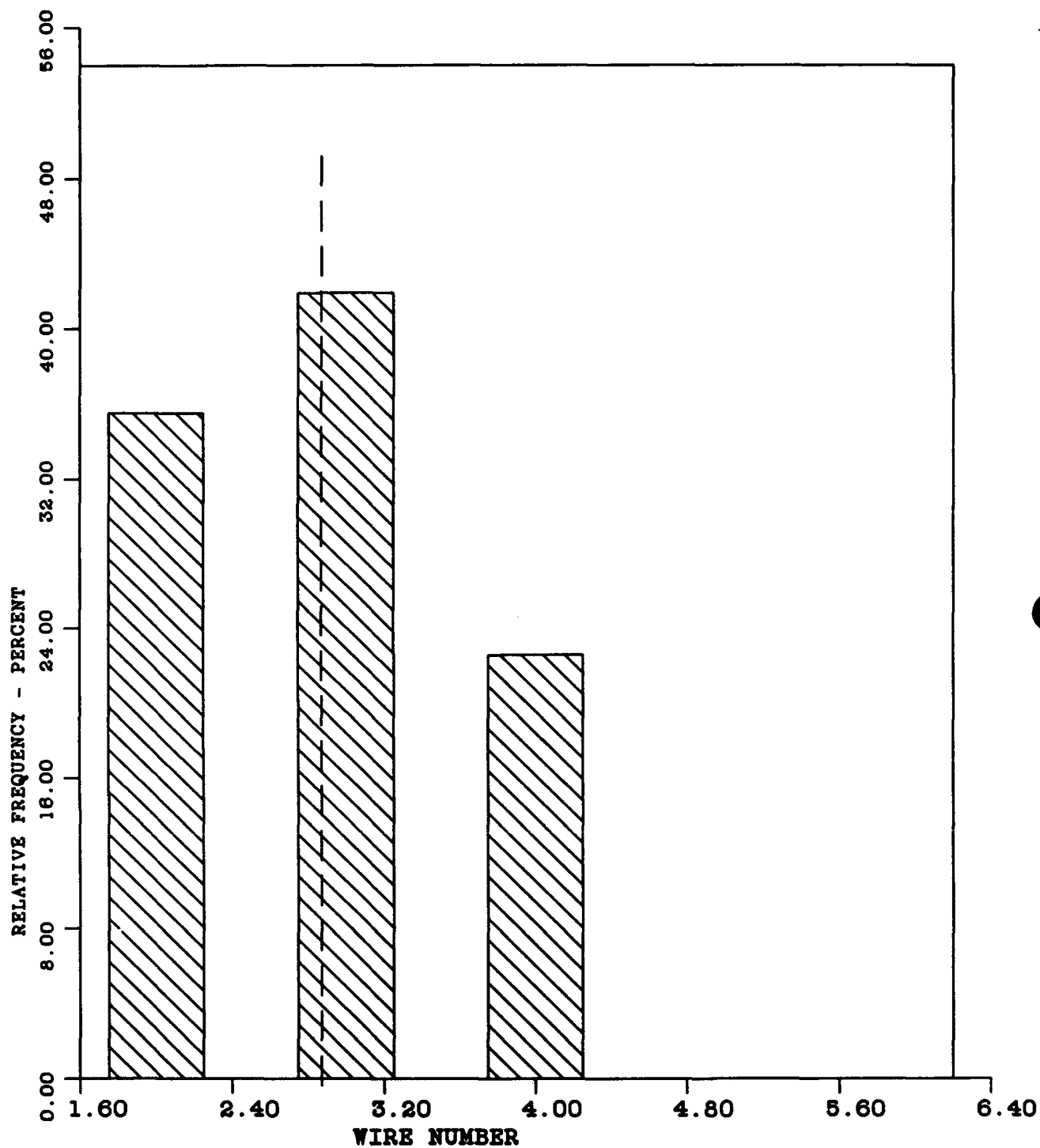


FIGURE E-31 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -2.65 DEGREES (0.046 RADIANS)

A3-0.23

S- 0.76 DEGREES (0.013 RADIANS)

A4-3.21

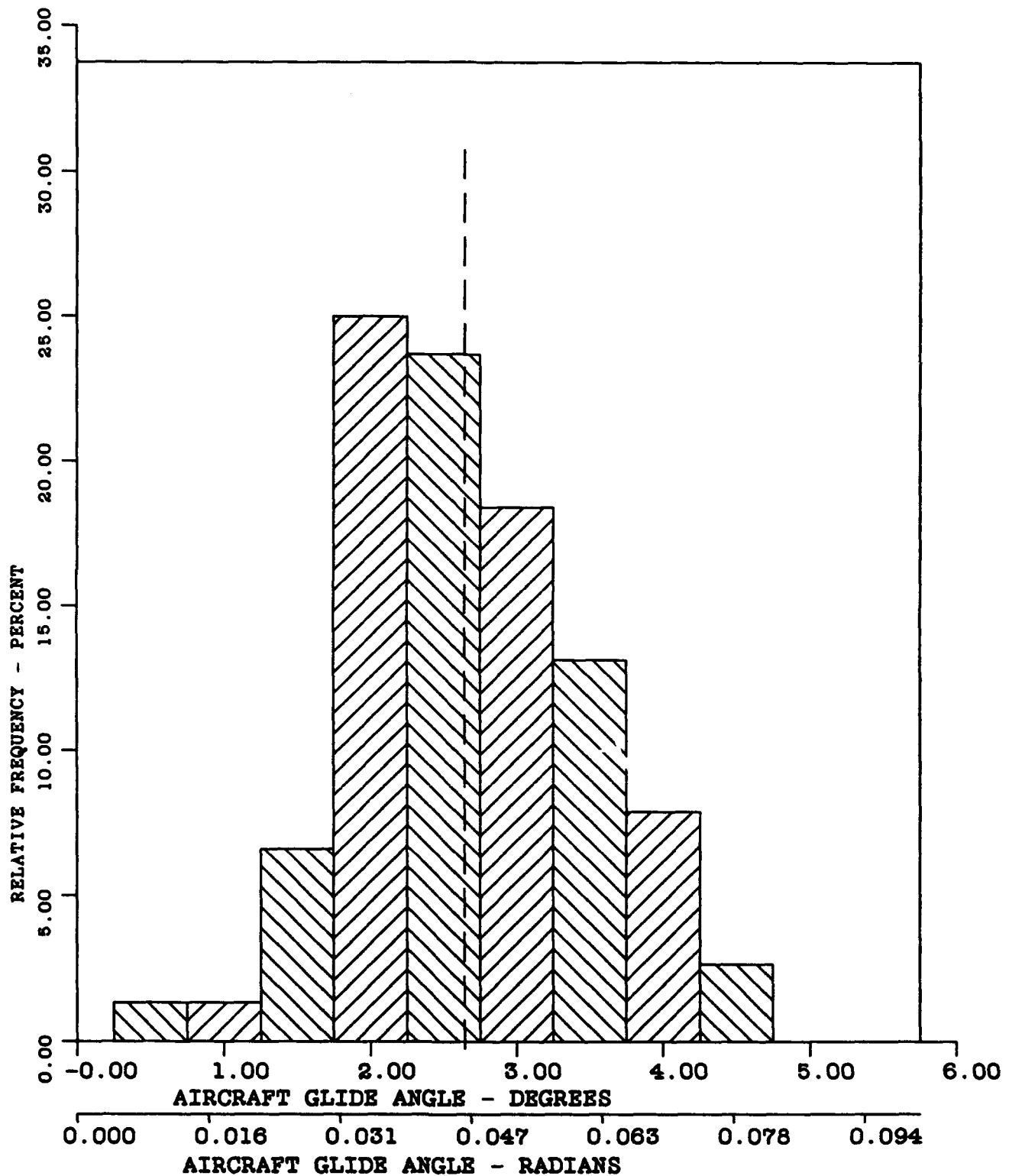


FIGURE E-32 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -121.30 KNOTS (62.40 METRES/SEC)

A3-0.30

S- 5.38 KNOTS (2.77 METRES/SEC)

A4-3.09

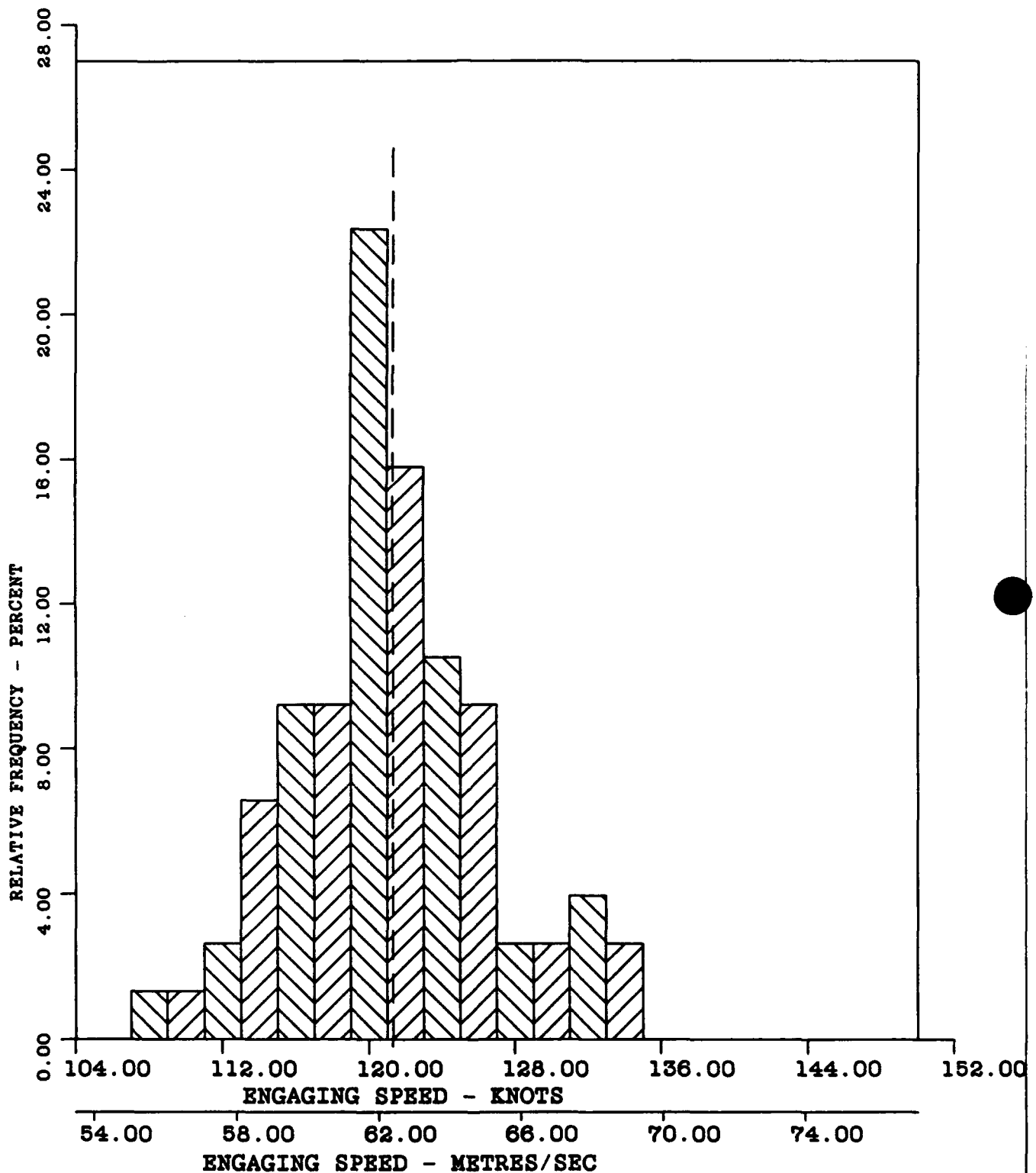


FIGURE E-33 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -121.30 KNOTS (62.40 METRES/SEC)

A3-0.30

S= 5.38 KNOTS (2.77 METRES/SEC)

A4-3.09

CURVE FITTED - NORMAL

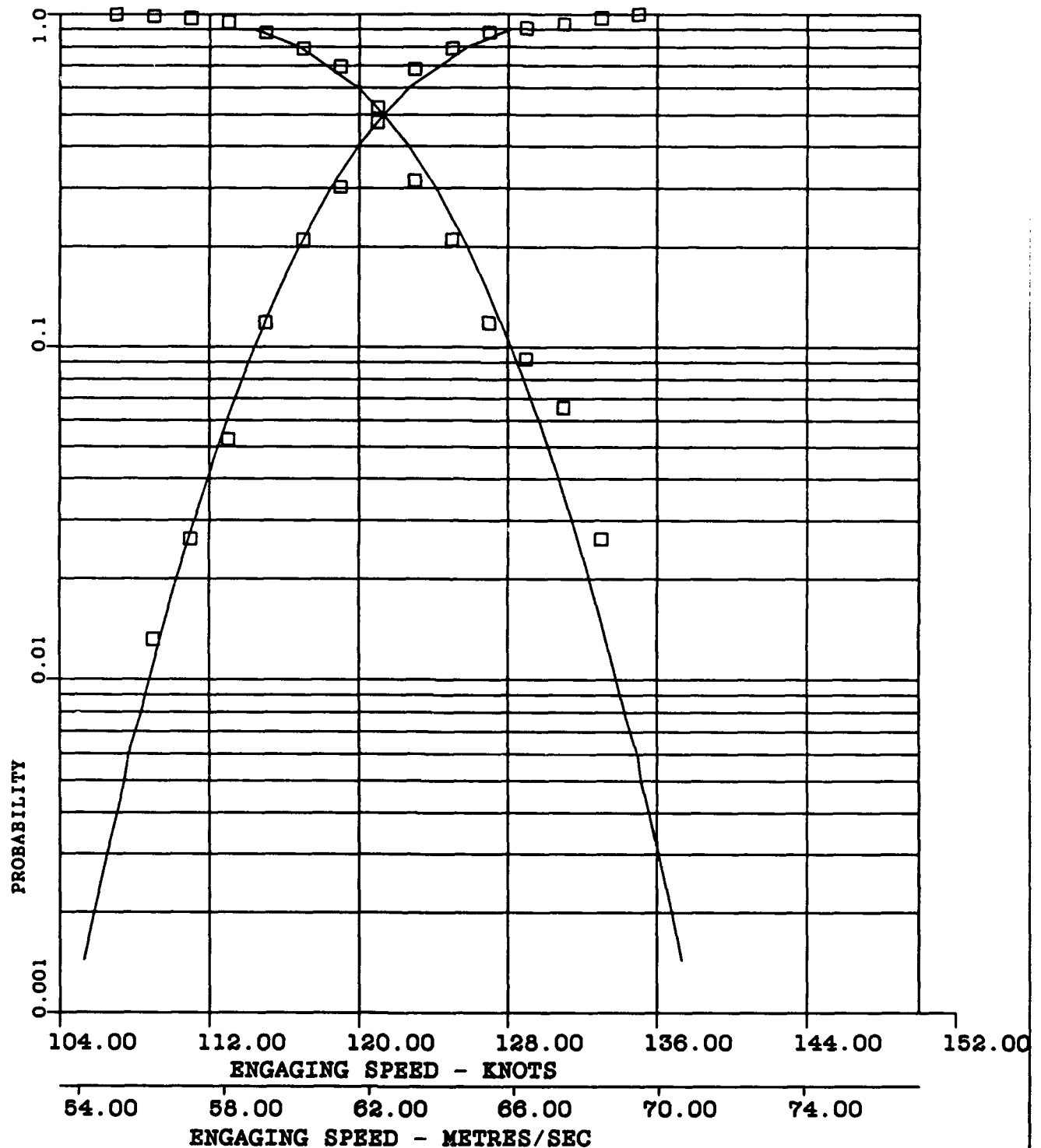


FIGURE E-34 PROBABILITY DISTRIBUTION OF ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -134.65 KNOTS (69.26 METRES/SEC)

A3-0.23

S- 2.15 KNOTS (1.11 METRES/SEC)

A4-2.92

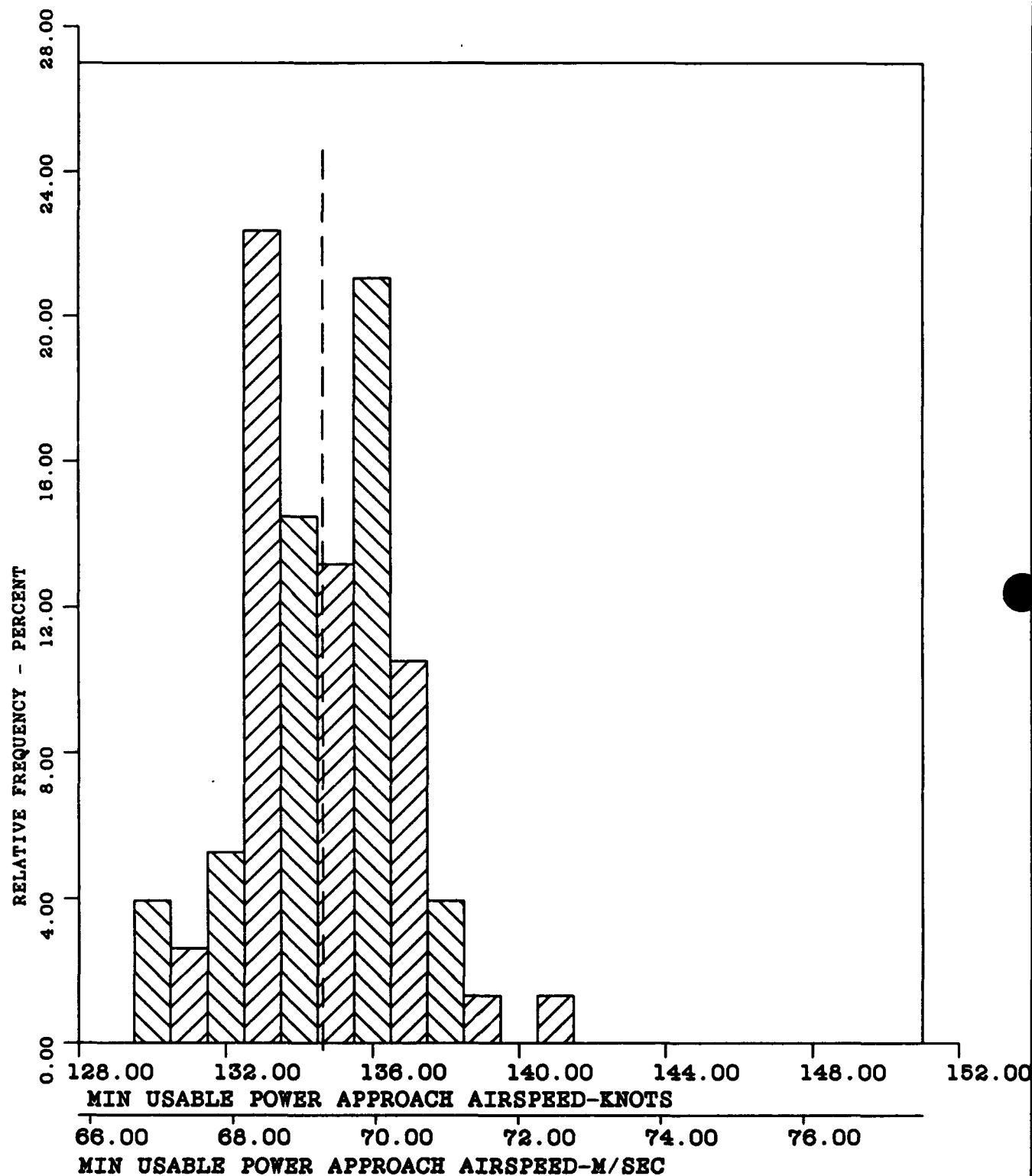


FIGURE E-35 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=76

 $\bar{X}$ =1.10

S= 0.04

A3=0.03

A4=2.62

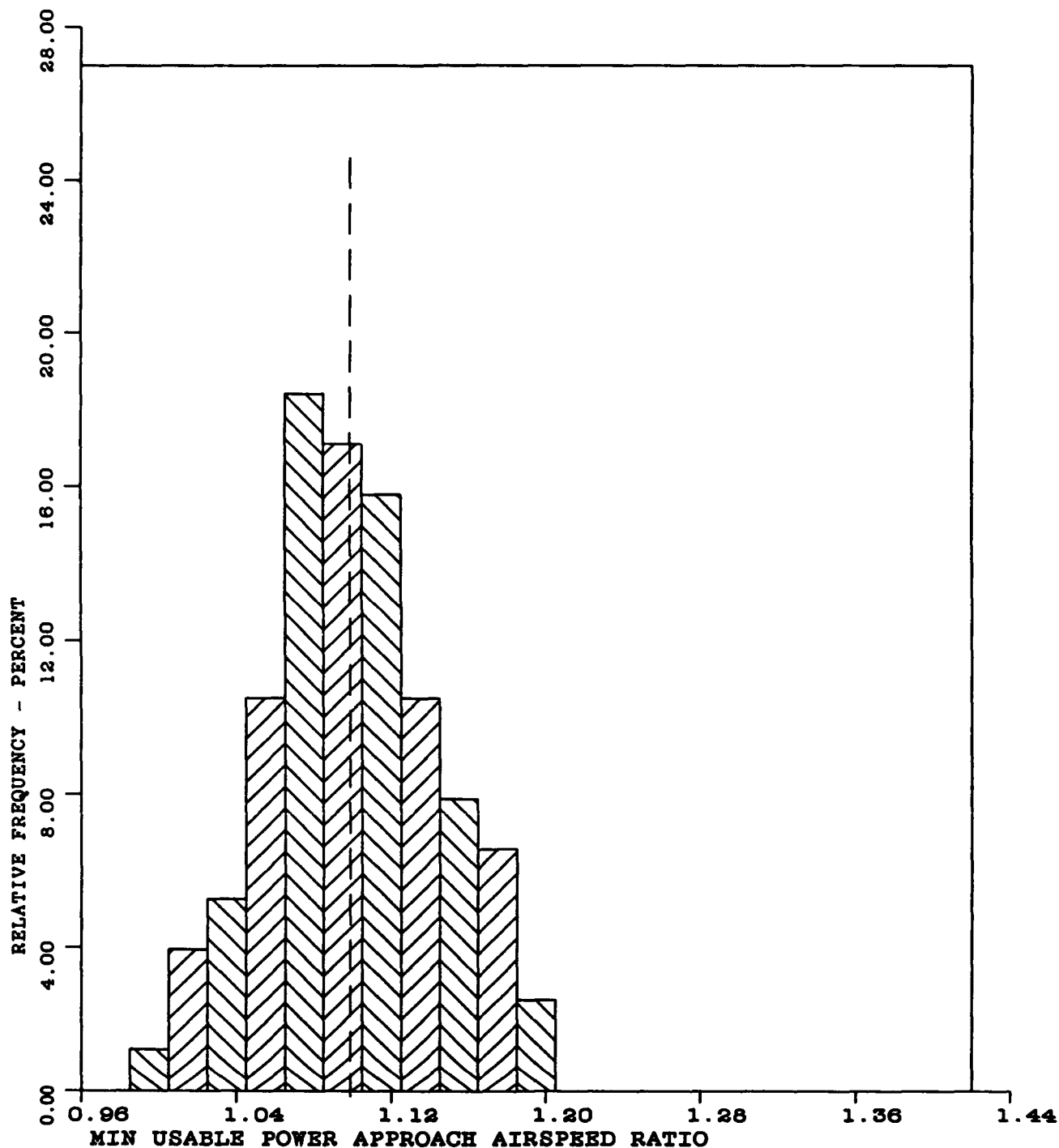


FIGURE E-36 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=76

 $\bar{X}$  = -0.30 DEGREES (-0.005 RADIANS)

A3 = -0.57

S = 0.83 DEGREES (0.015 RADIANS)

A4 = 3.73

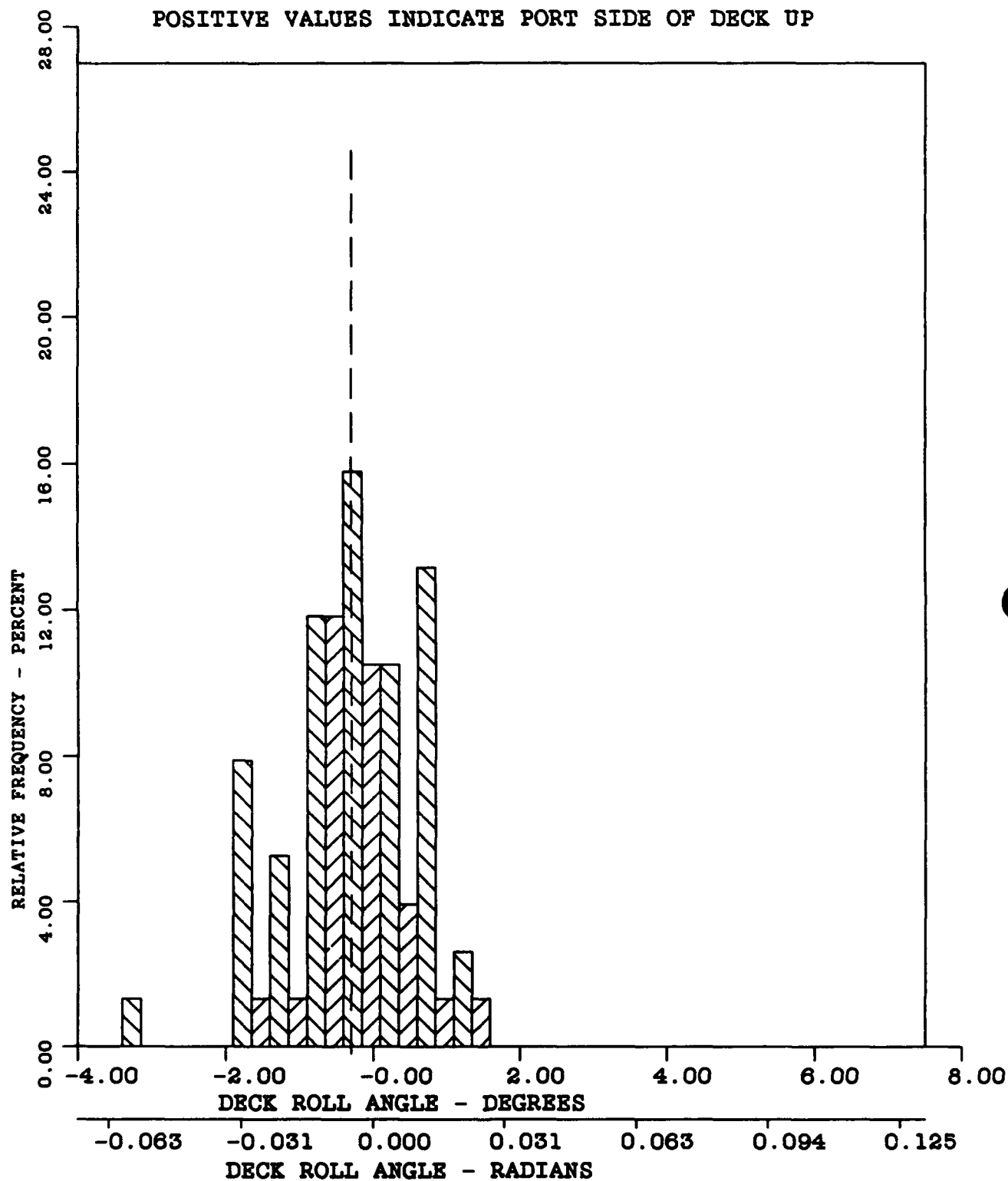


FIGURE E-37 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$  = -0.30 DEGREES (-0.005 RADIANS)

A3 = -0.57

S = 0.83 DEGREES (0.015 RADIANS)

A4 = 3.73

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

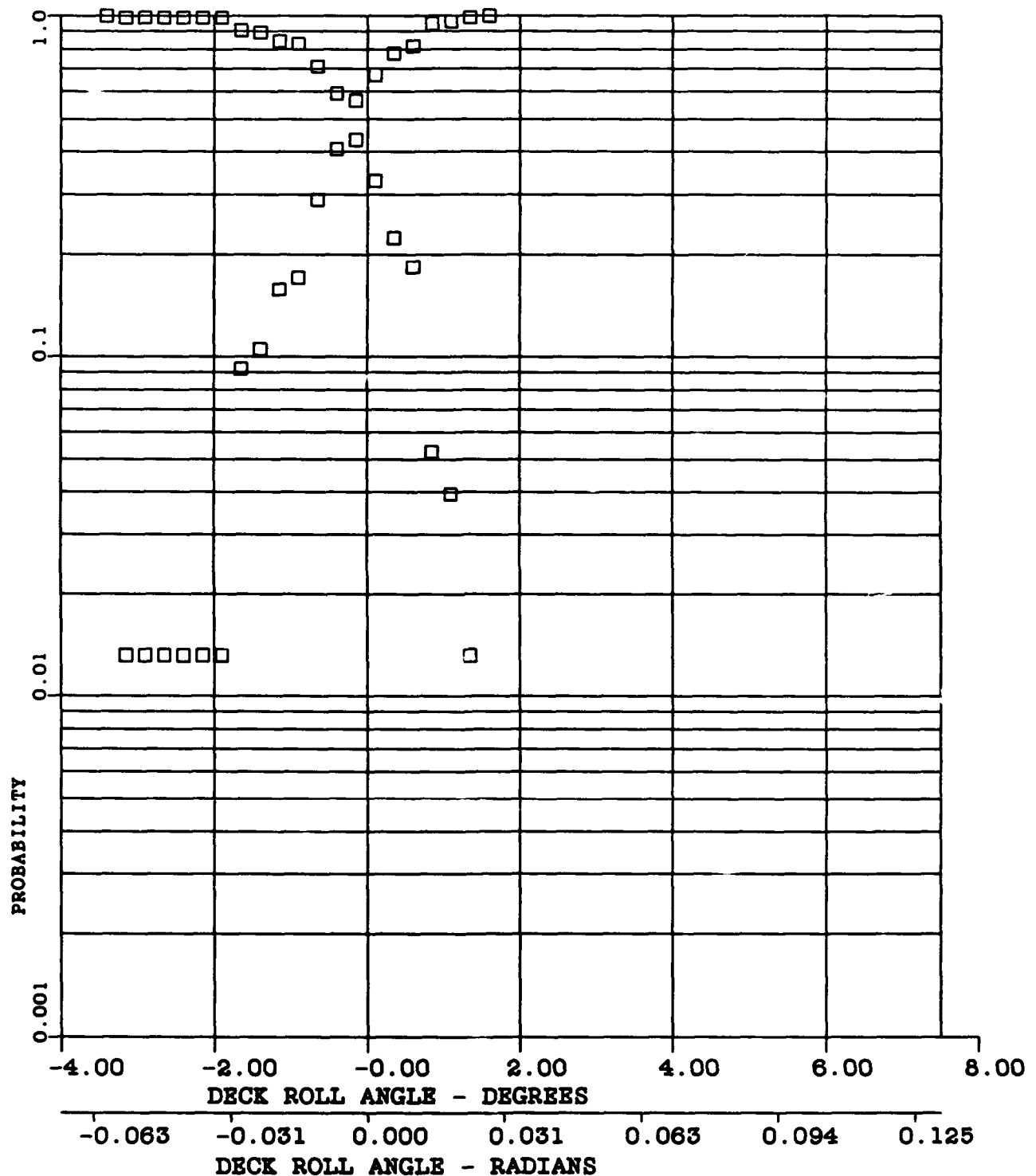


FIGURE E-38 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -0.38 DEGREES (-0.007 RADIANS)

A3=-0.35

S= 0.19 DEGREES (0.003 RADIANS)

A4=2.59

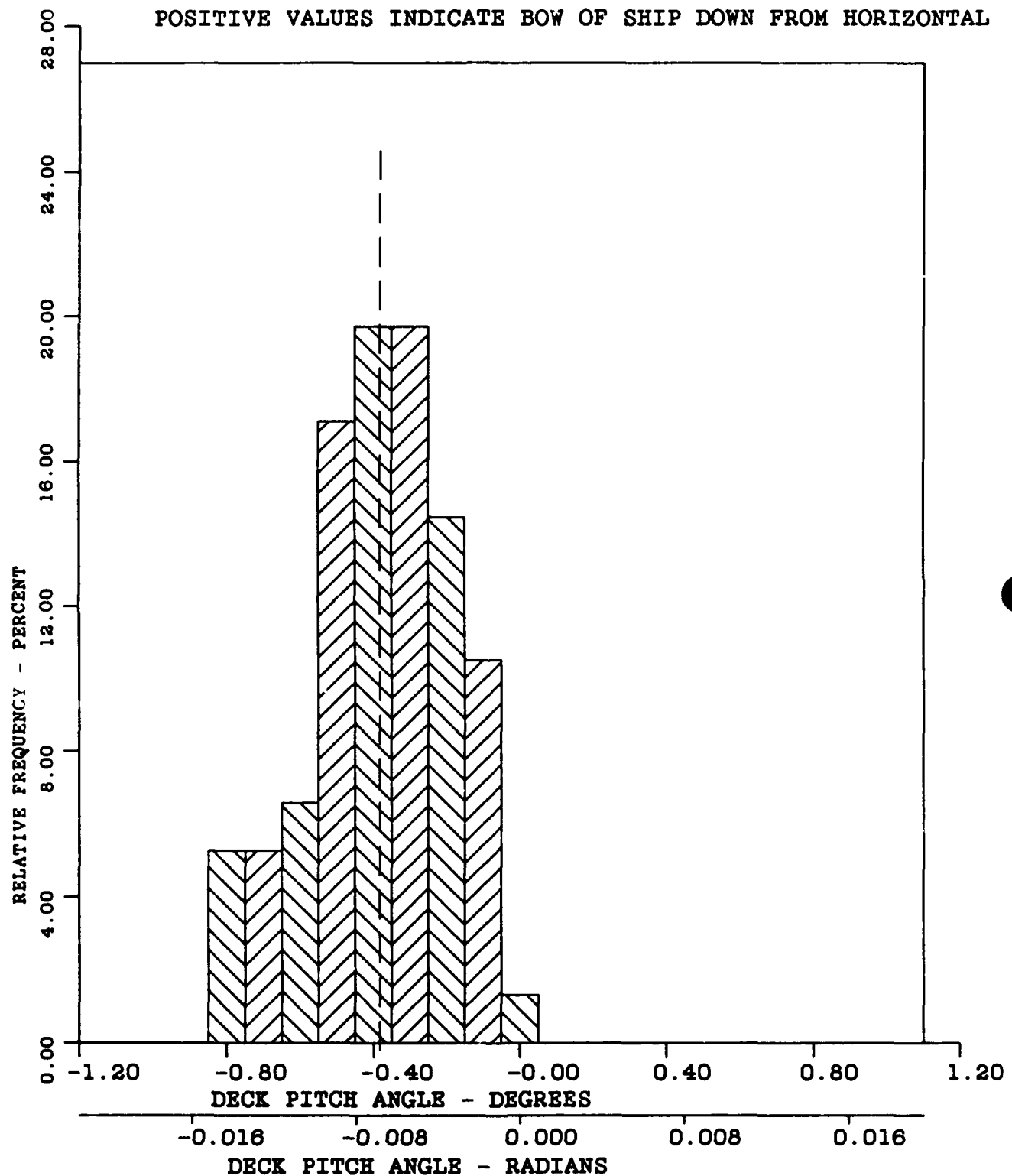


FIGURE E-39 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL F/A-18A AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)  
N-76

$\bar{X}$ -0.38 DEGREES (-0.007 RADIANS)

A3=-0.35

S= 0.19 DEGREES (0.003 RADIANS)

A4=2.59

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

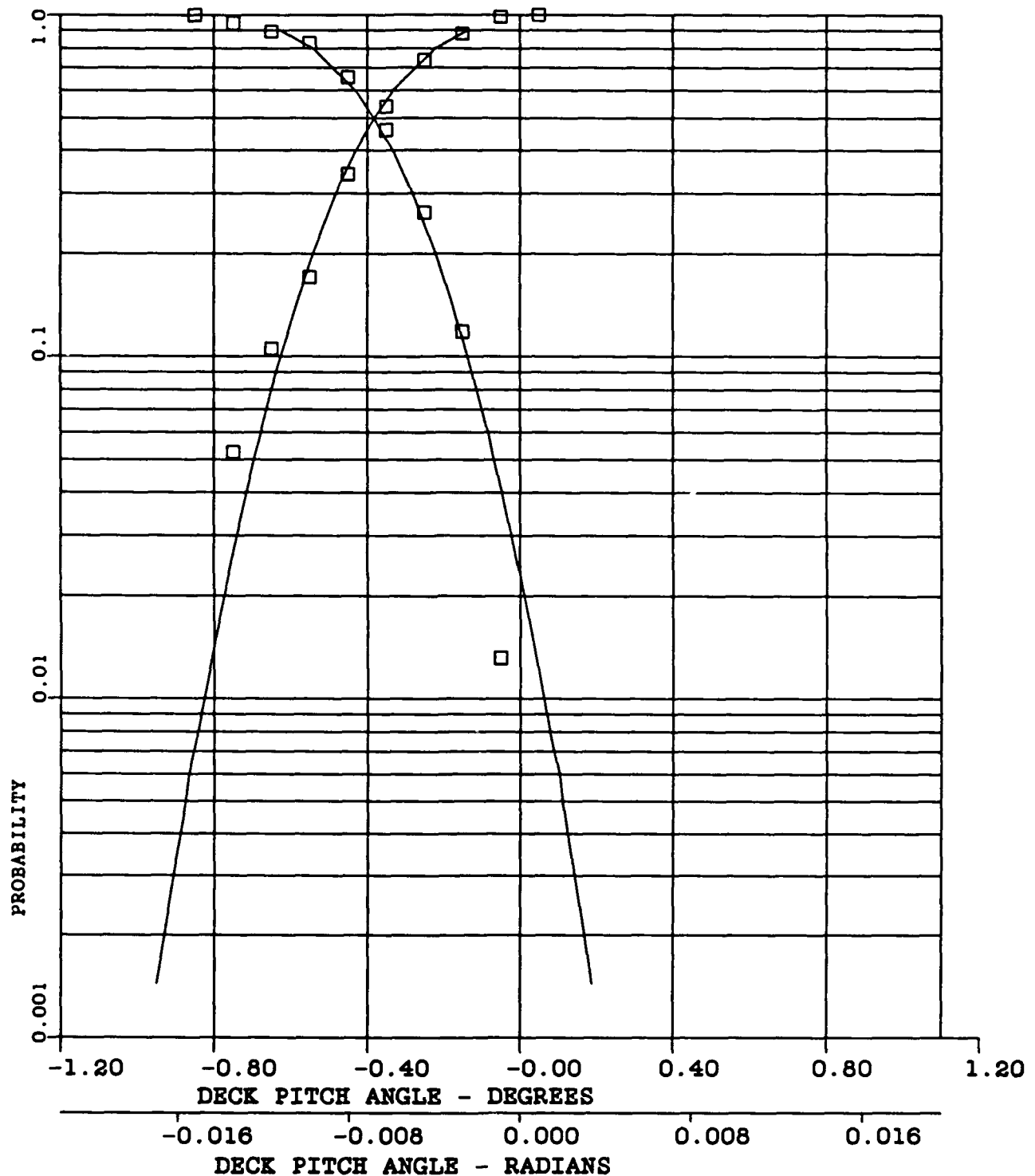


FIGURE E-40 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -30907.90 POUNDS (14019.82 KILOGRAMS)

A3-0.27

S- 989.48 POUNDS (448.83 KILOGRAMS)

A4-2.99

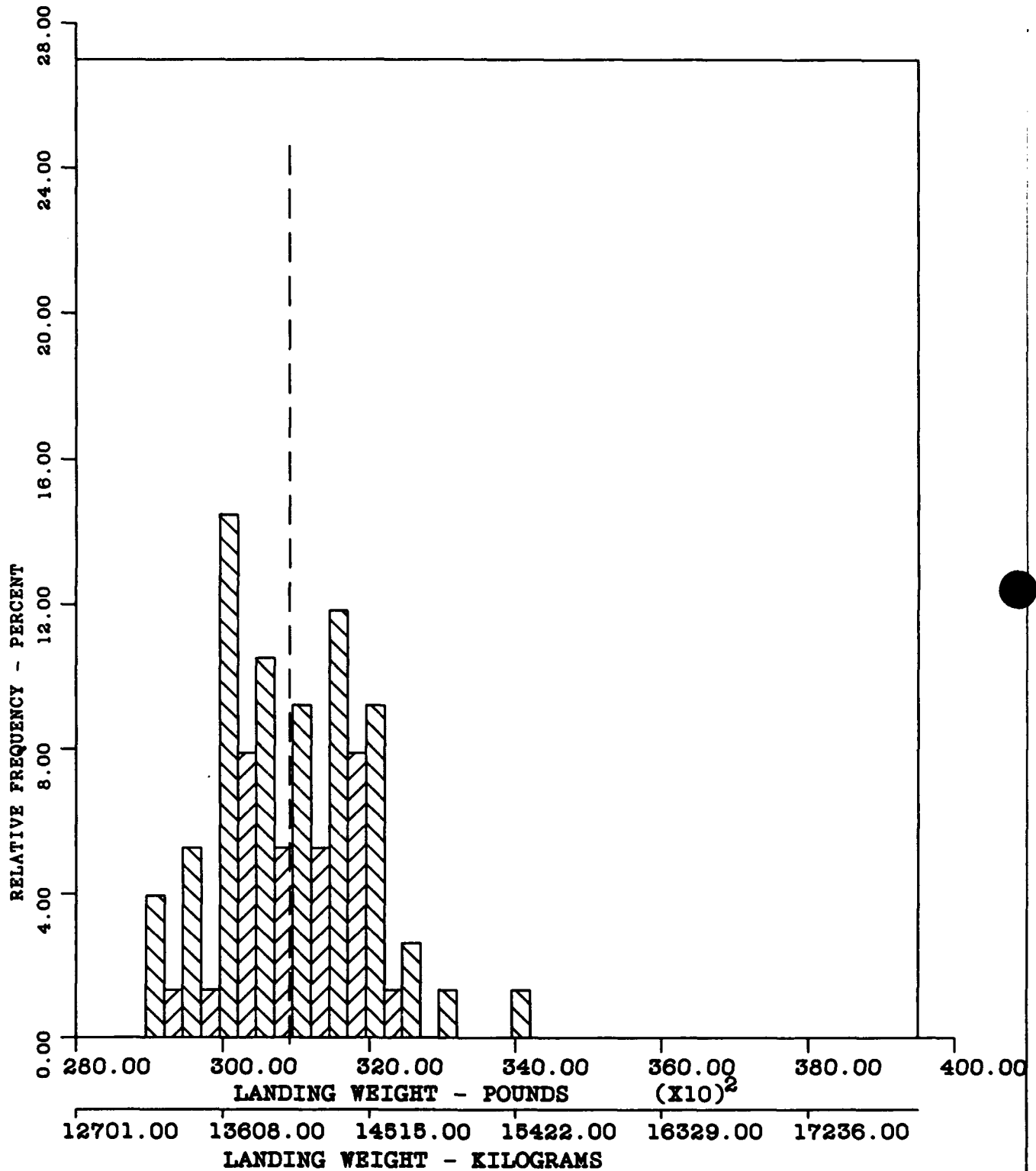


FIGURE E-41 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT



MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ - -0.60 DEG/SEC (-0.010 RAD/SEC)

A3-0.58

S- 7.58 DEG/SEC (0.132 RAD/SEC)

A4-5.78

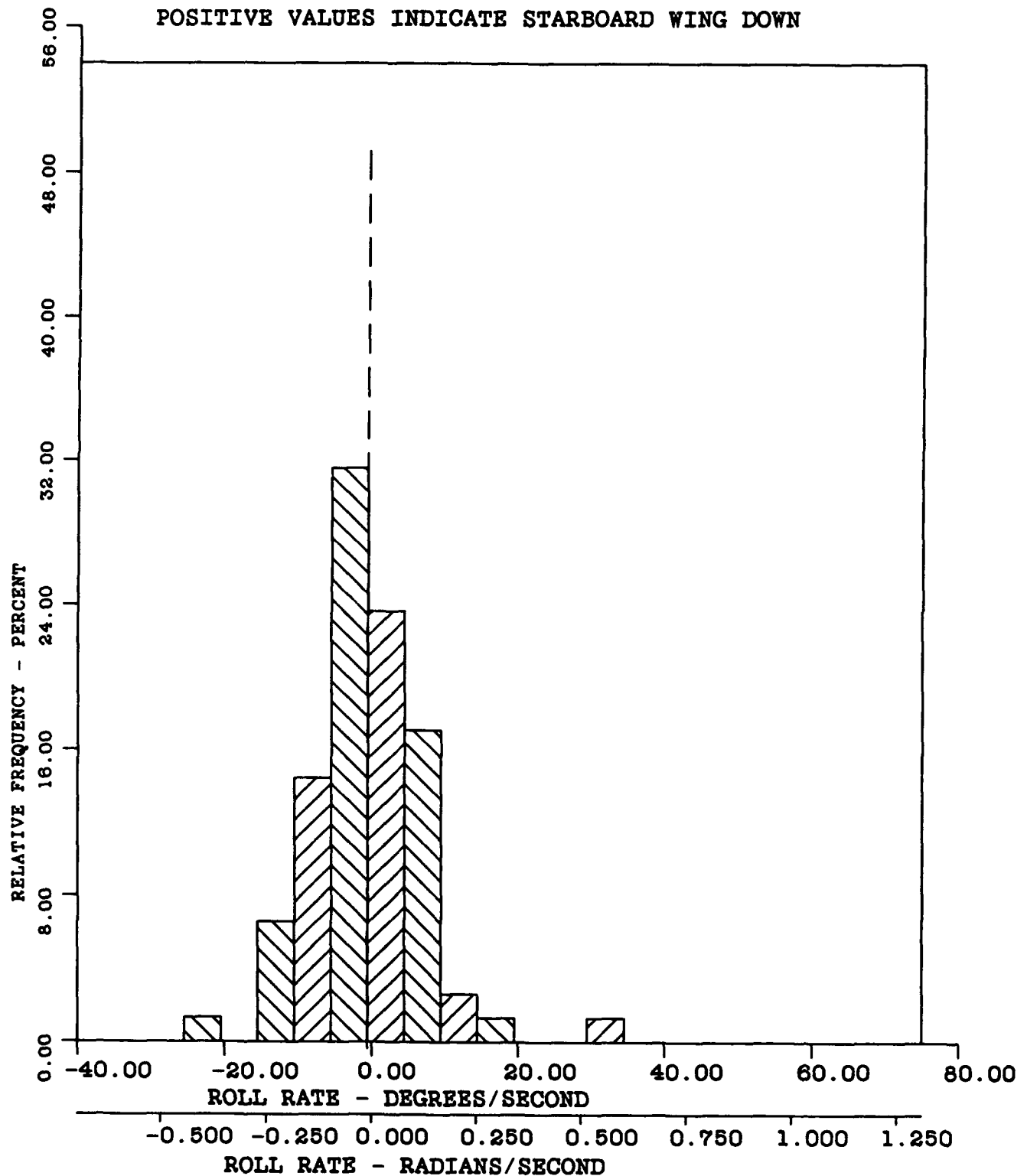


FIGURE E-42 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RAD/SEC)

N-76

 $\bar{X}$  = -0.60 DEG/SEC (-0.010 RAD/SEC)

A3-0.58

S = 7.58 DEG/SEC (0.132 RAD/SEC)

A4-5.78

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

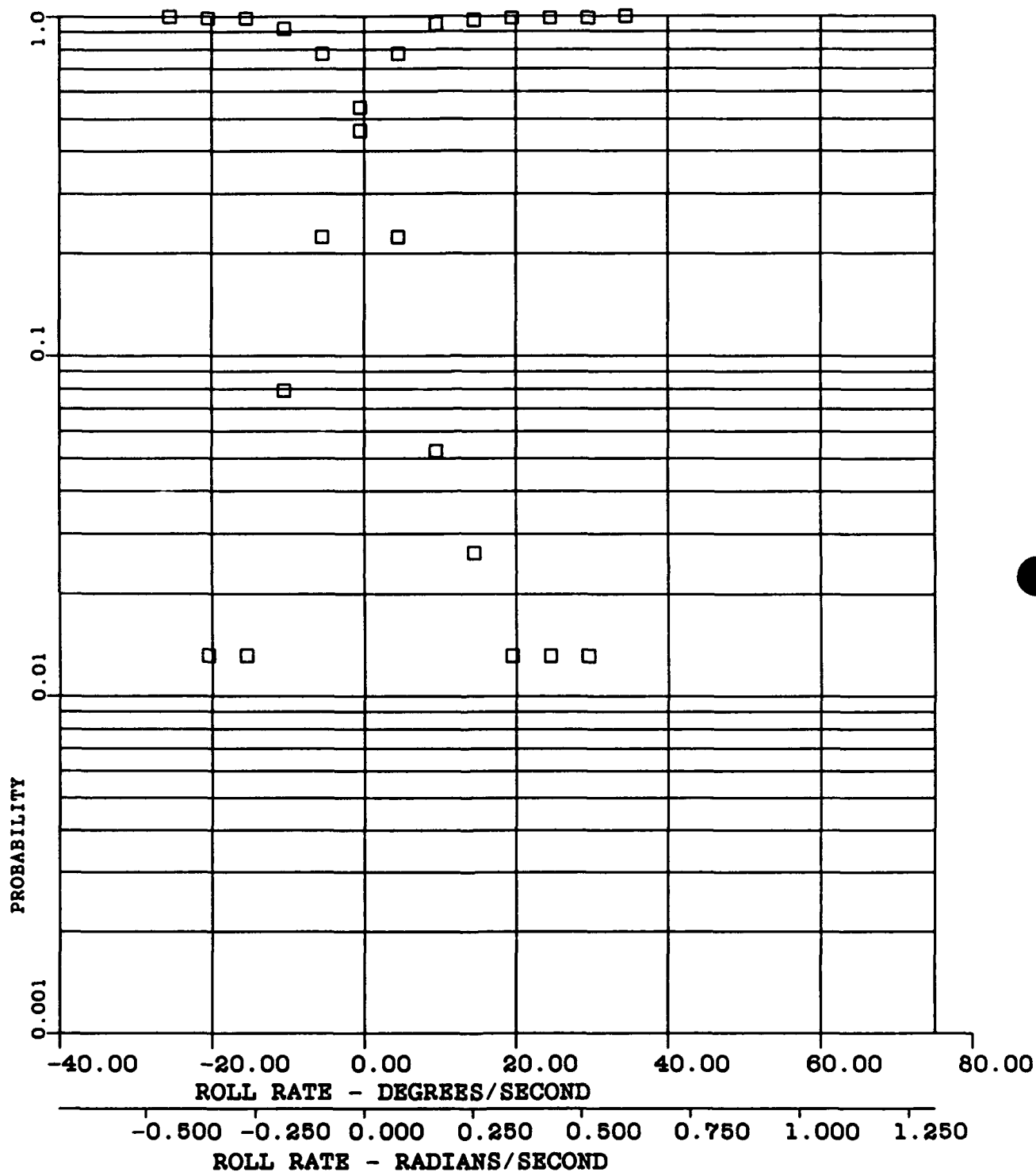


FIGURE E-43 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)  
N-76

 $\bar{X}$ -0.83 DEG/SEC (0.014 RAD/SEC)

S- 2.57 DEG/SEC (0.045 RAD/SEC)

A3--0.20

A4-3.09

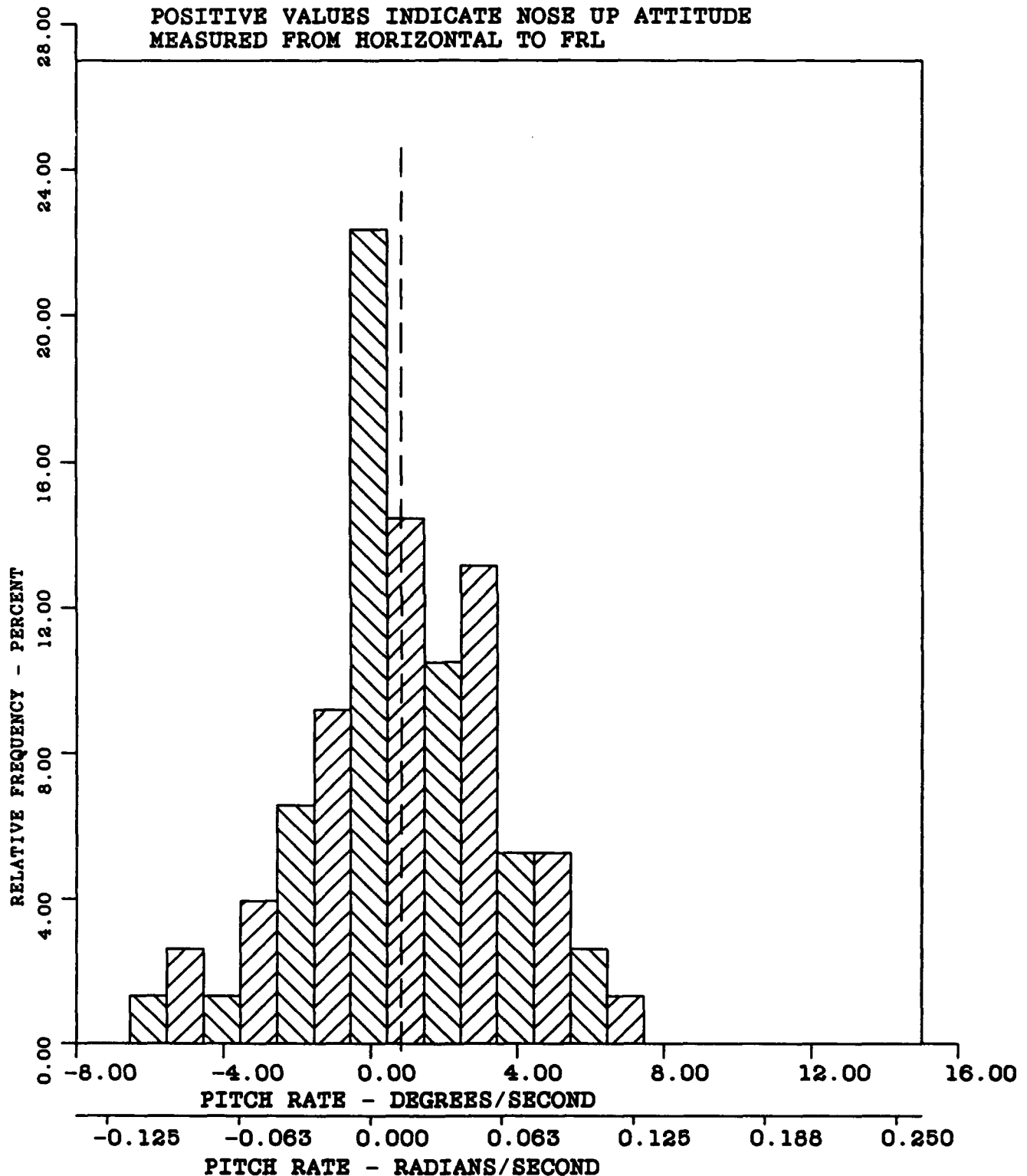


FIGURE E-44 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -0.83 DEG/SEC (0.014 RAD/SEC)

A3--0.20

S= 2.57 DEG/SEC (0.045 RAD/SEC)

A4-3.09

CURVE FITTED - NORMAL

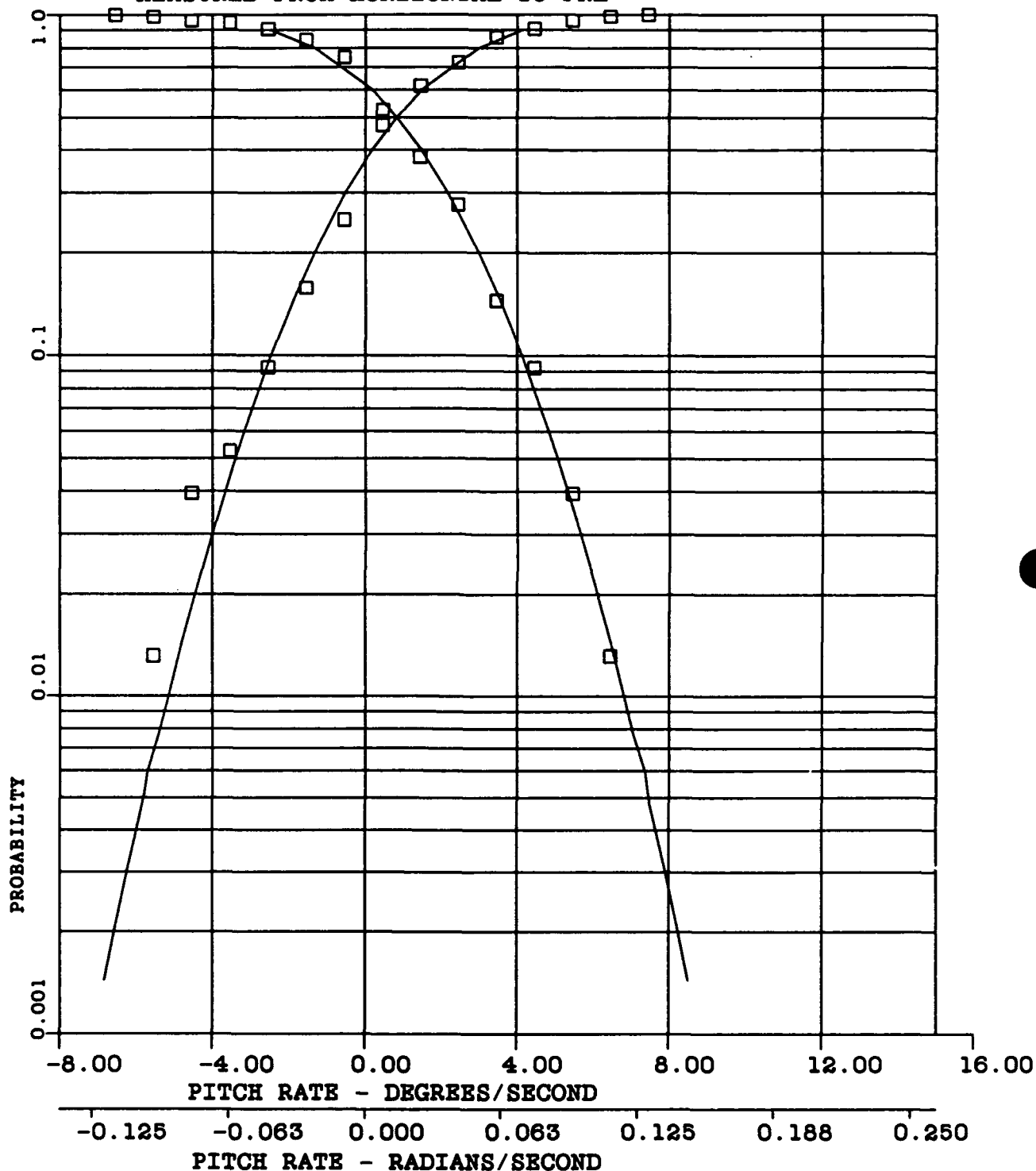
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE E-45 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$  = -3.74 DEGREES (-0.065 RADIANS)

A3=0.03

S = 2.21 DEGREES (0.039 RADIANS)

A4=3.82

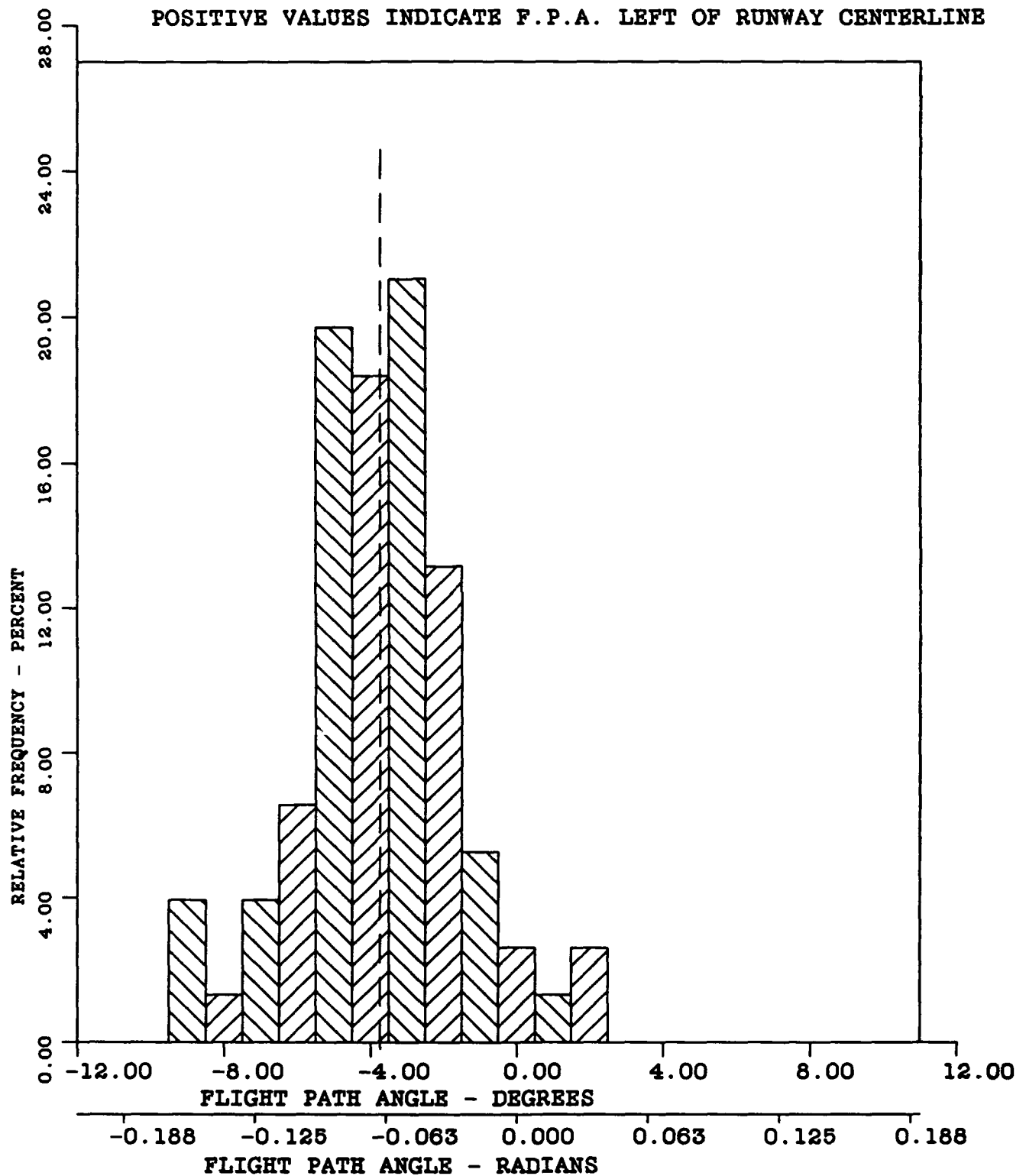


FIGURE E-46 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$  = -3.74 DEGREES (-0.065 RADIANS)

A3=0.03

S = 2.21 DEGREES (0.039 RADIANS)

A4=3.82

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

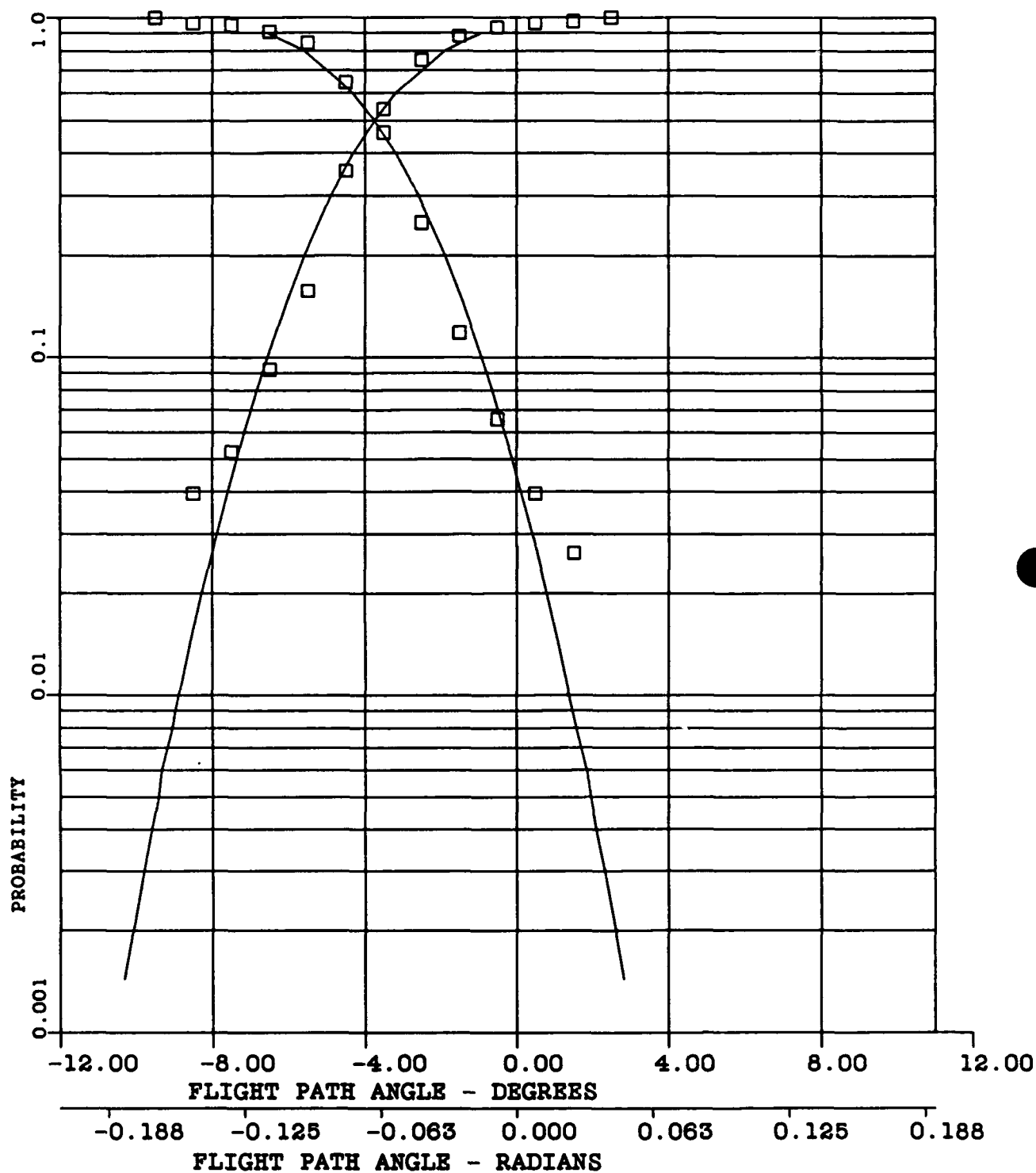


FIGURE E-47 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -2.84 DEGREES (0.050 RADIANS)

A3=0.33

S- 3.95 DEGREES (0.069 RADIANS)

A4=2.40

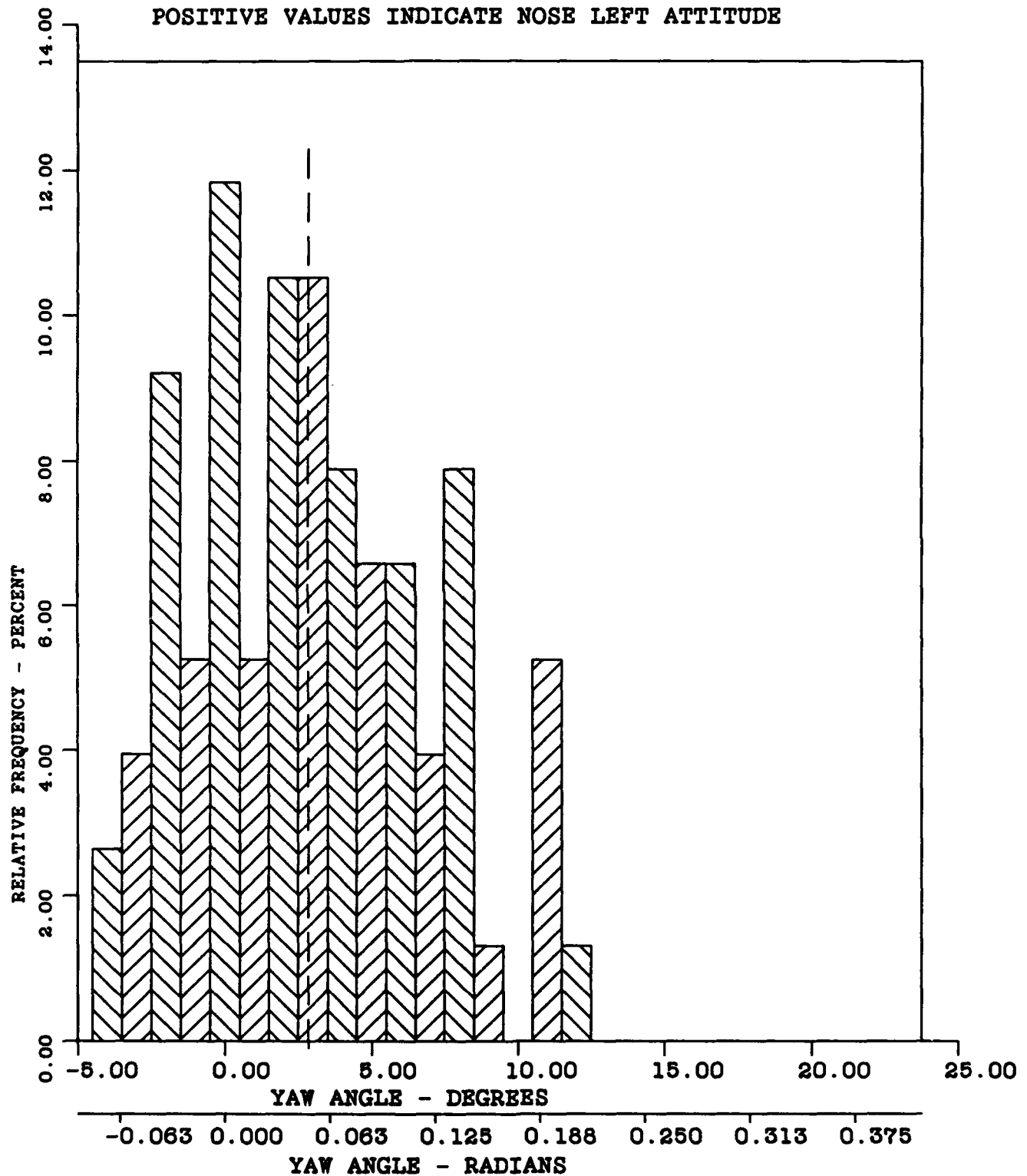


FIGURE E-48 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL F/A-18A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-76

 $\bar{X}$ -2.84 DEGREES (0.050 RADIANS)

A3-0.33

S- 3.95 DEGREES (0.069 RADIANS)

A4-2.40

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

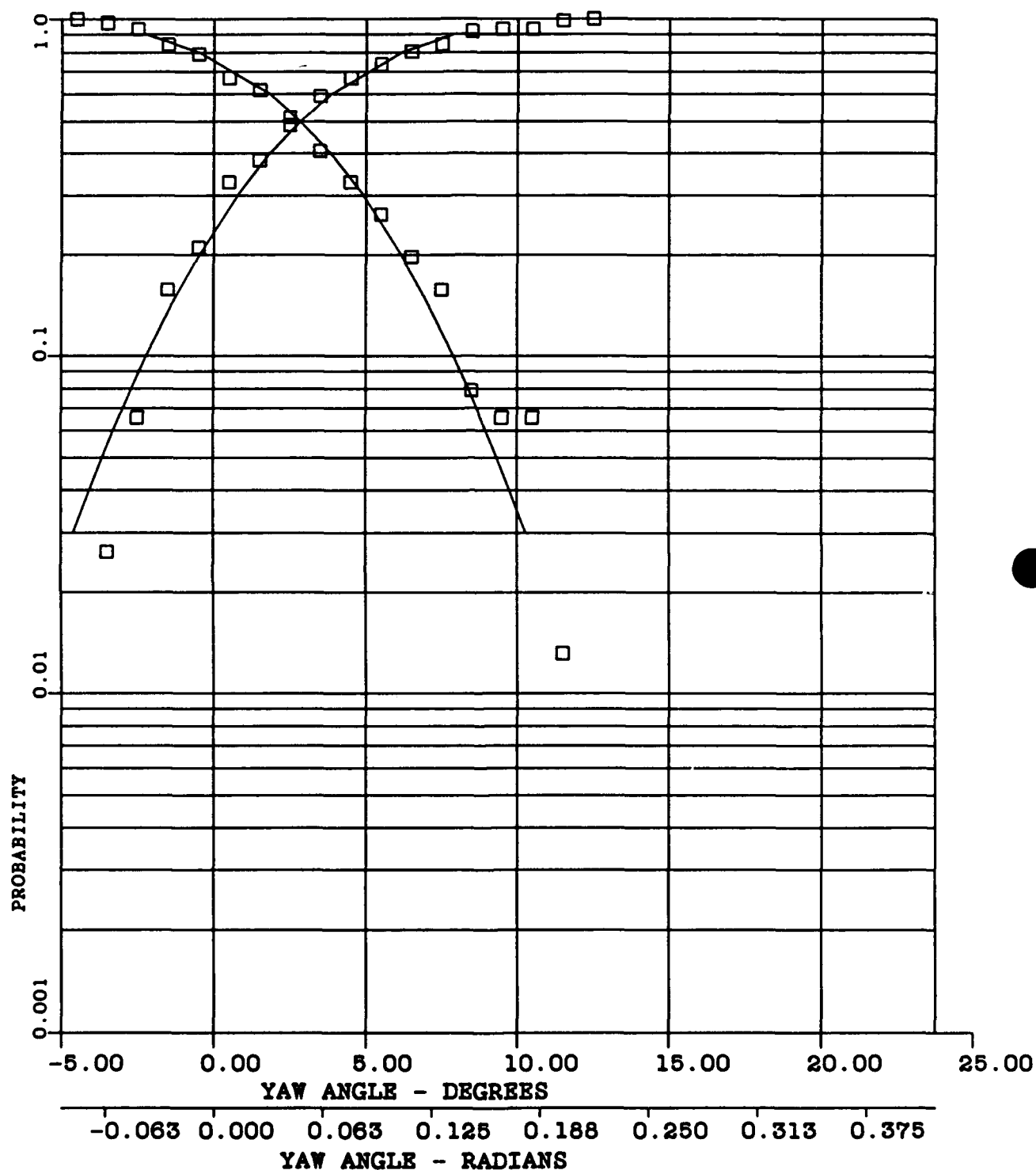


FIGURE E-49 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE



# **APPENDIX F**

**A-6E AIRCRAFT**

**DAY CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

## Appendix F:

Frequency and Probability Distributions,  
A-6E Aircraft, Day Landings

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MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -26.35 KNOTS (13.55 METRES/SEC)

A3-.05

S-2.07 KNOTS (1.06 METRES/SEC)

A4-2.52

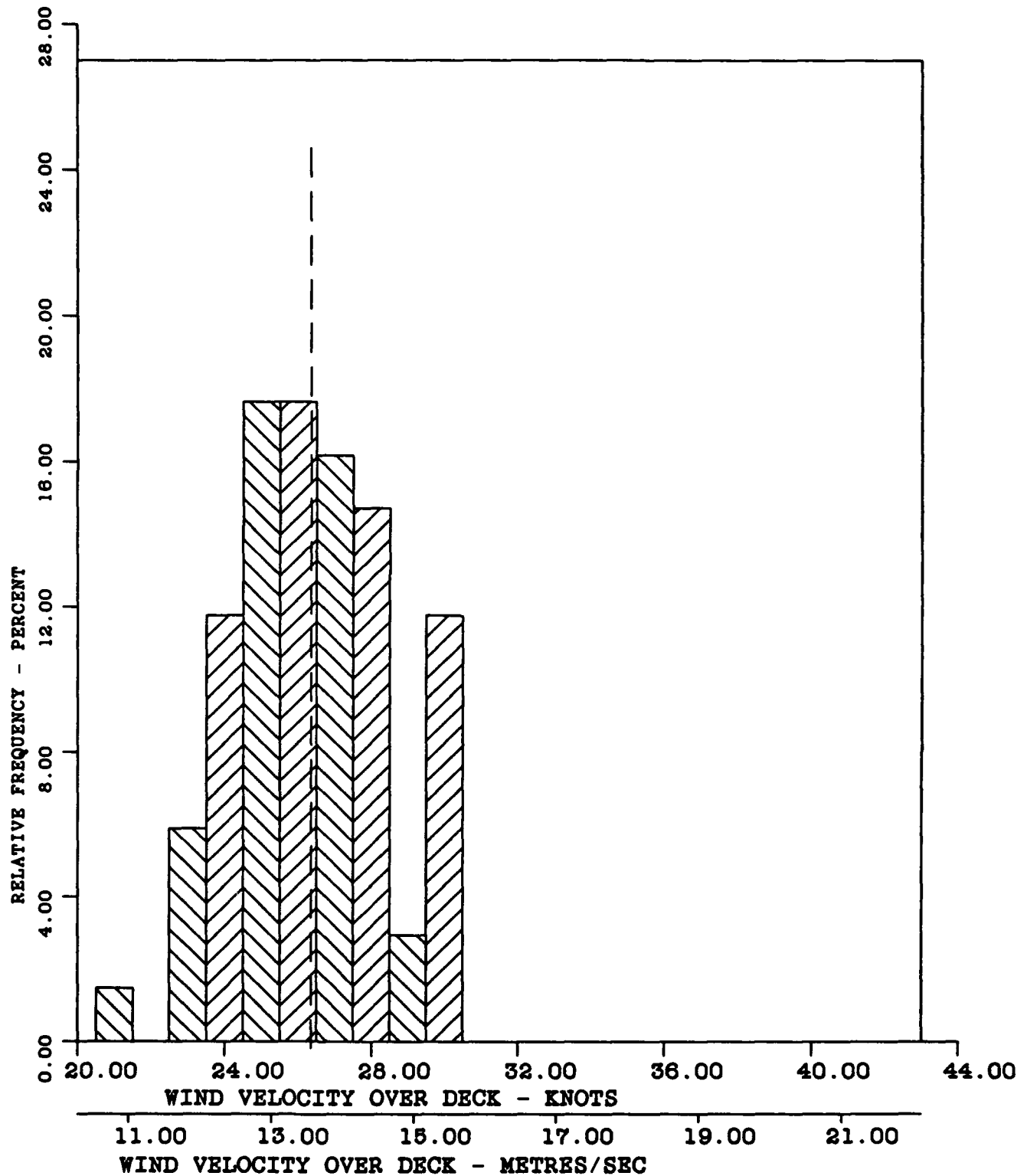


FIGURE F-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -26.35 KNOTS (13.55 METRES/SEC)

A3-.05

S-2.07 KNOTS (1.06 METRES/SEC)

A4-2.52

CURVE FITTED - NORMAL

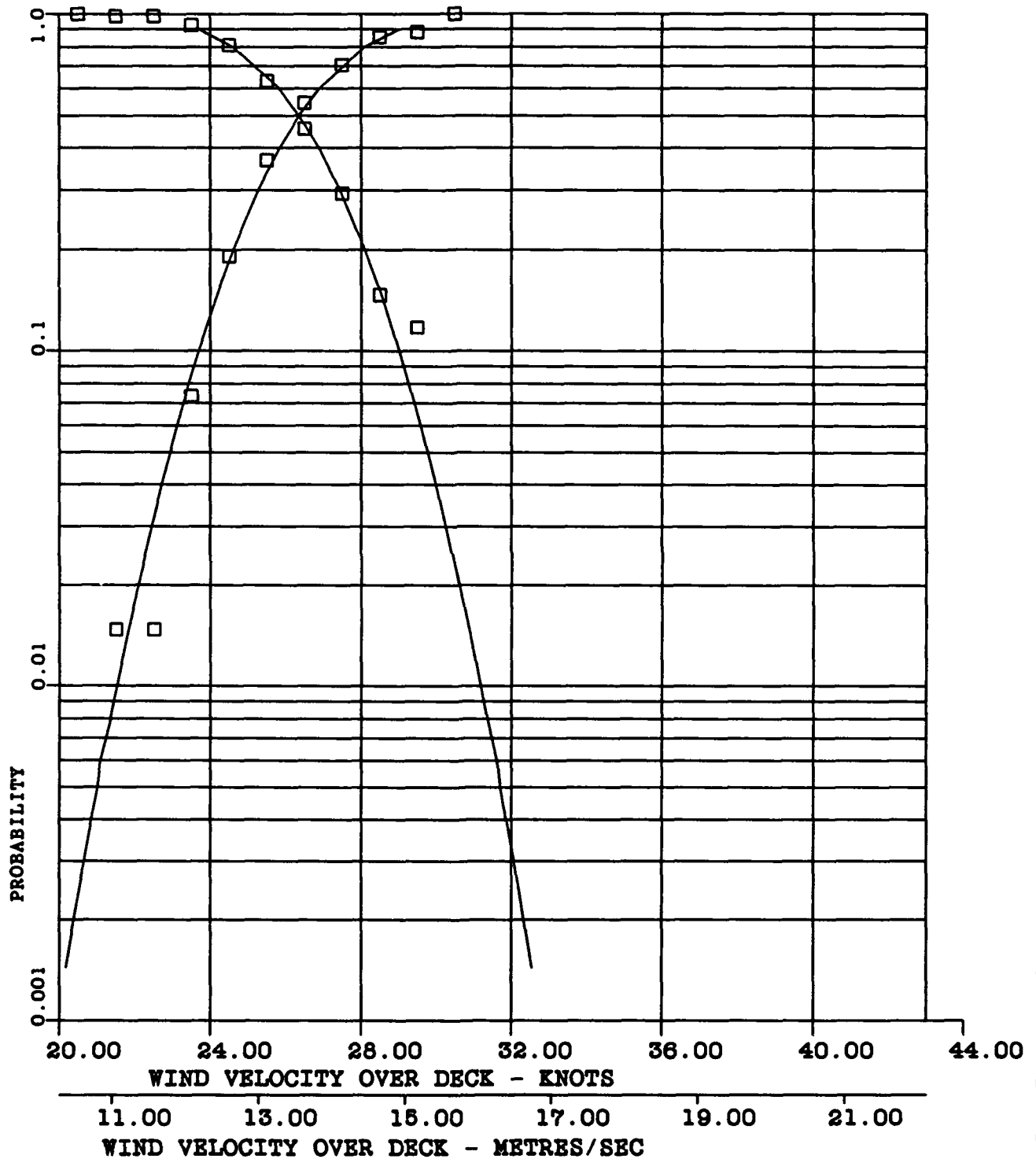


FIGURE F-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -128.66 KNOTS (66.18 METRES/SEC)

A3-.20

S-4.51 KNOTS (2.32 METRES/SEC)

A4-2.75

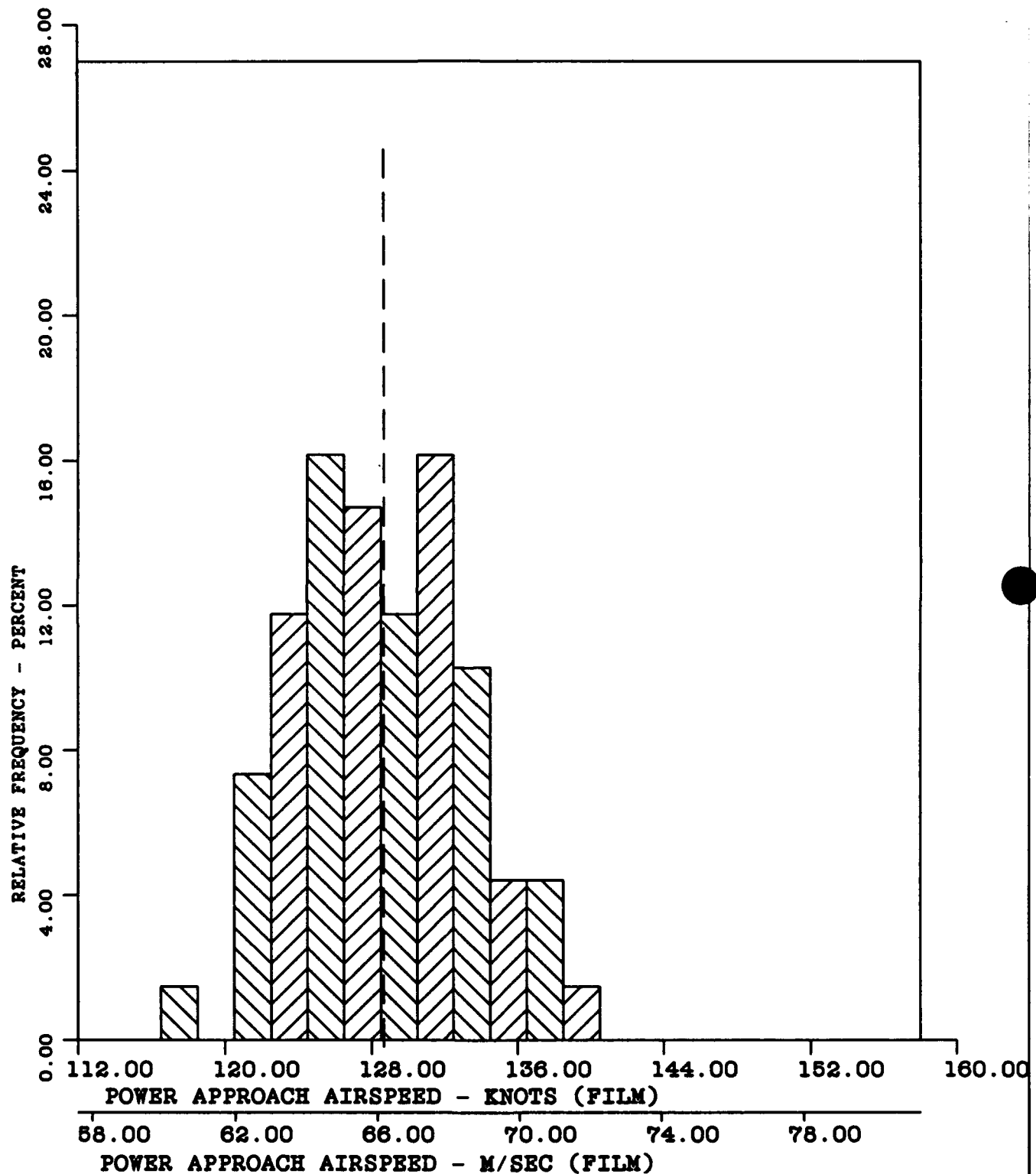


FIGURE F-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -128.66 KNOTS (66.18 METRES/SEC)

A3-.20

S-4.51 KNOTS (2.32 METRES/SEC)

A4-2.75

CURVE FITTED - NORMAL

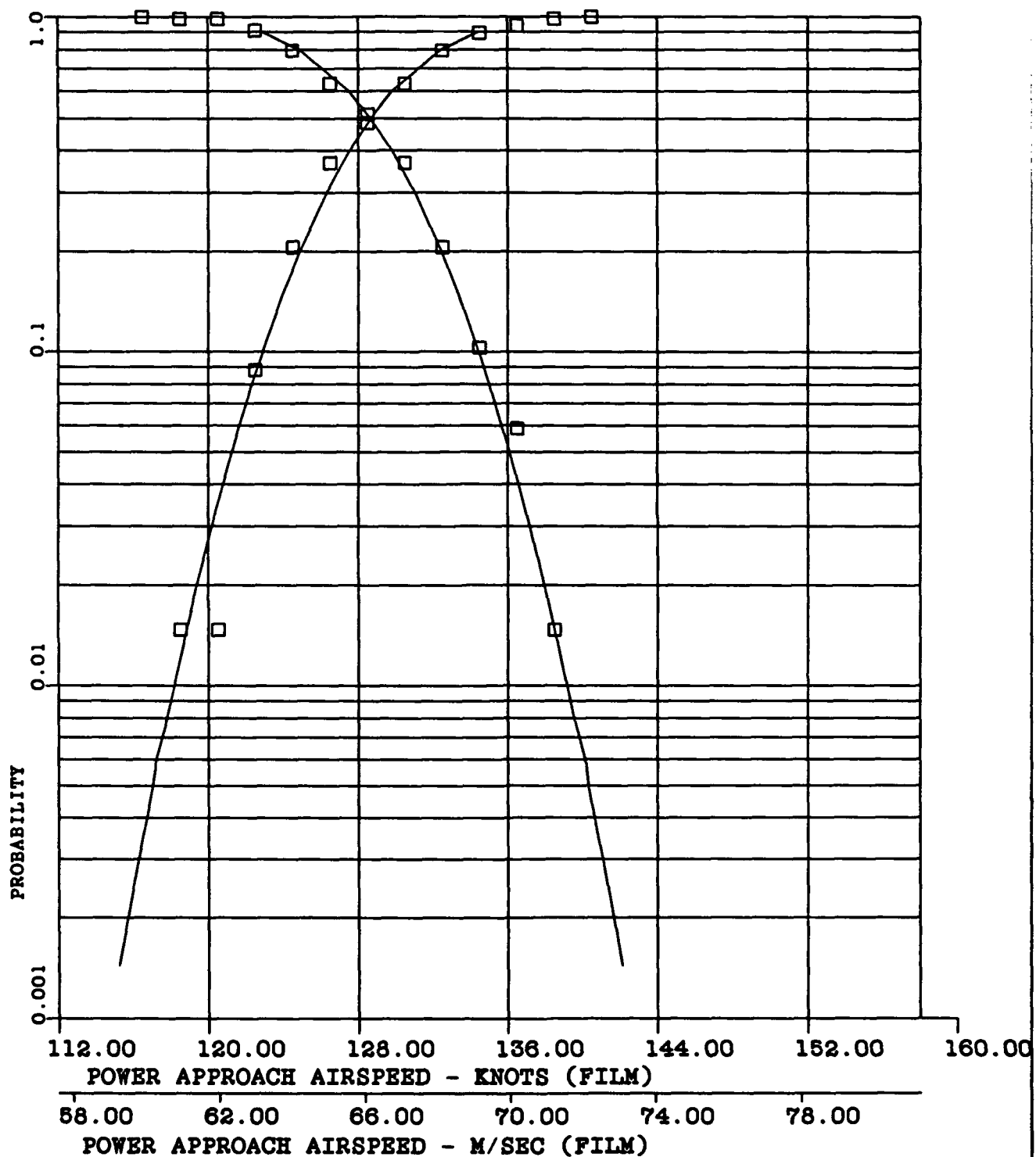


FIGURE F-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -16.62 FEET (5.06 METRES)

A3-.88

S-2.50 FEET (.76 METRES)

A4-4.38

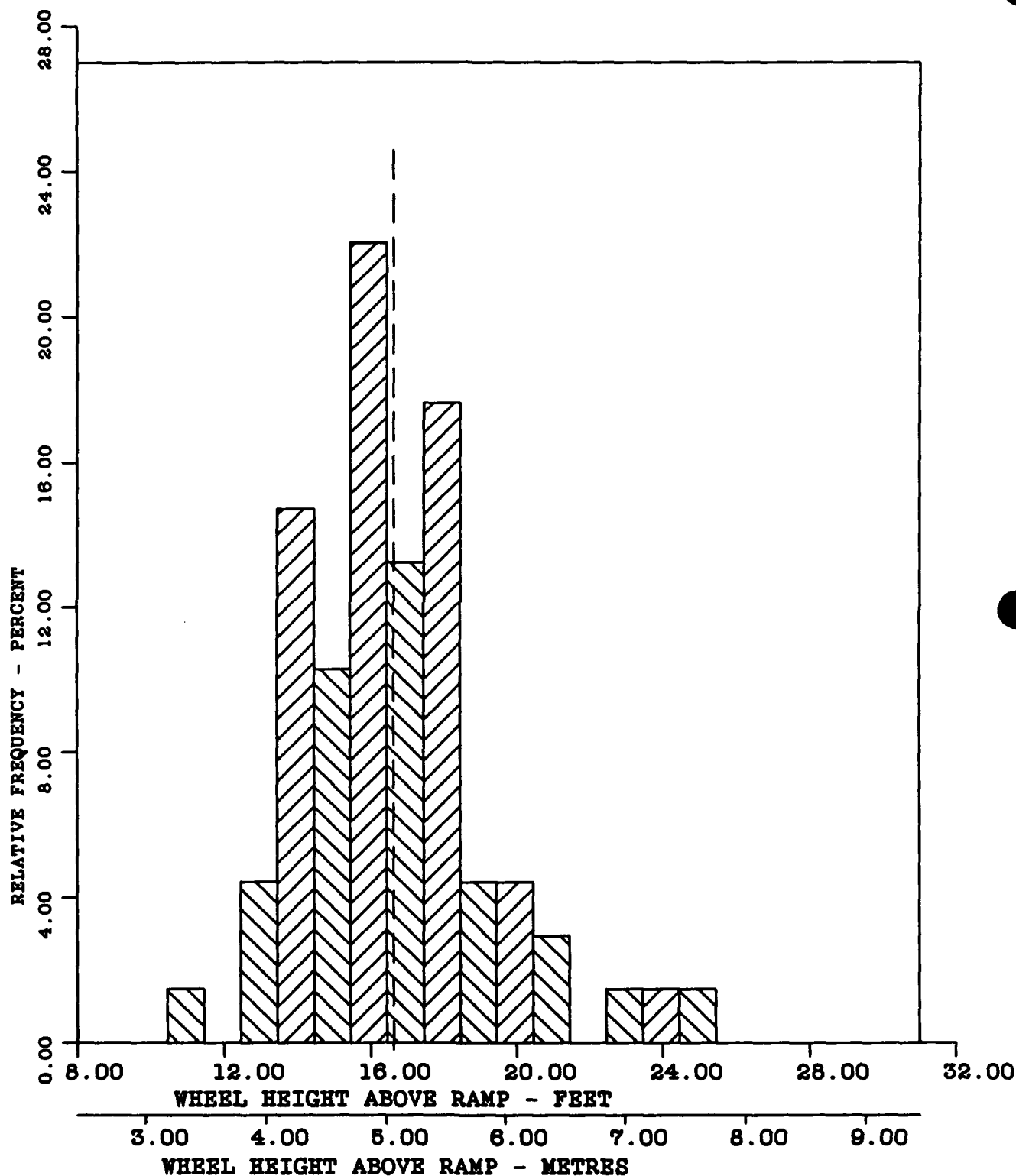


FIGURE F-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -16.62 FEET (5.06 METRES)

A3-.88

S-2.50 FEET (.76 METRES)

A4-4.38

CURVE FITTED - PEARSON TYPE III

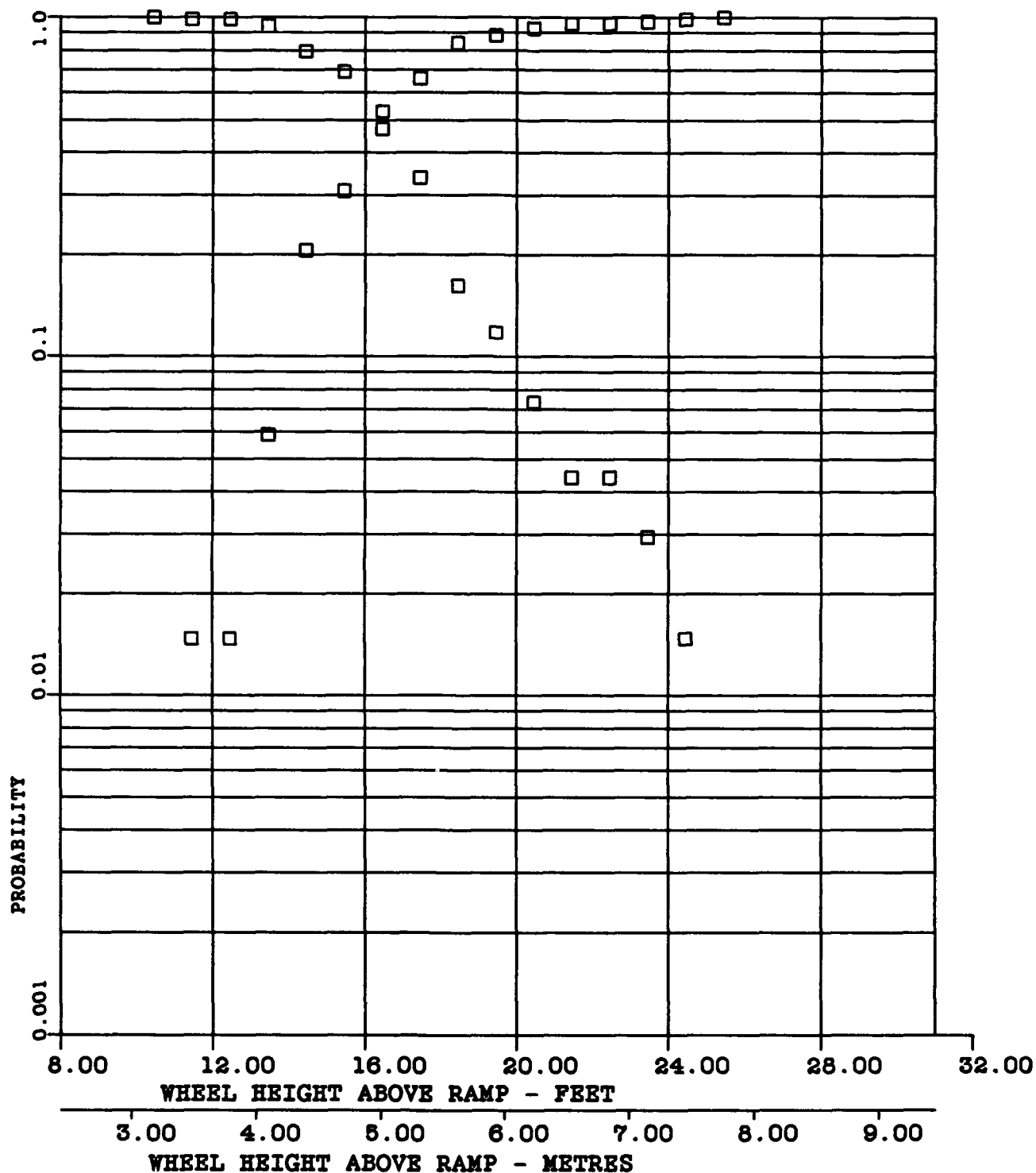


FIGURE F-6 PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -8.26 FEET/SEC (2.51 METRES/SEC)

A3--.70

S-2.39 FEET/SEC (.73 METRES/SEC)

A4-5.59

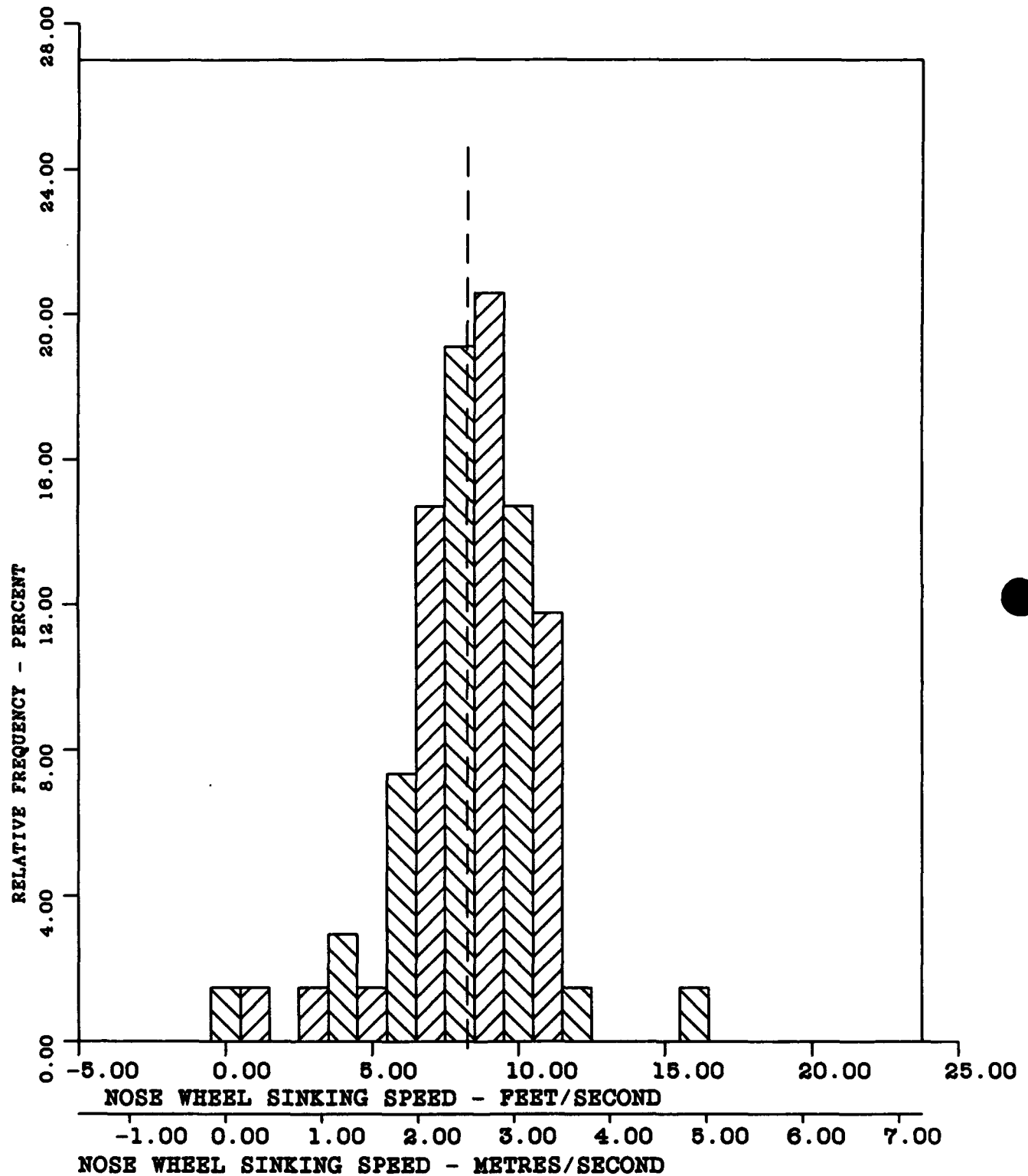


FIGURE F-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -8.26 FEET/SEC (2.51 METRES/SEC)

A3--.70

S-2.39 FEET/SEC (.73 METRES/SEC)

A4-5.59

CURVE FITTED - PEARSON TYPE III

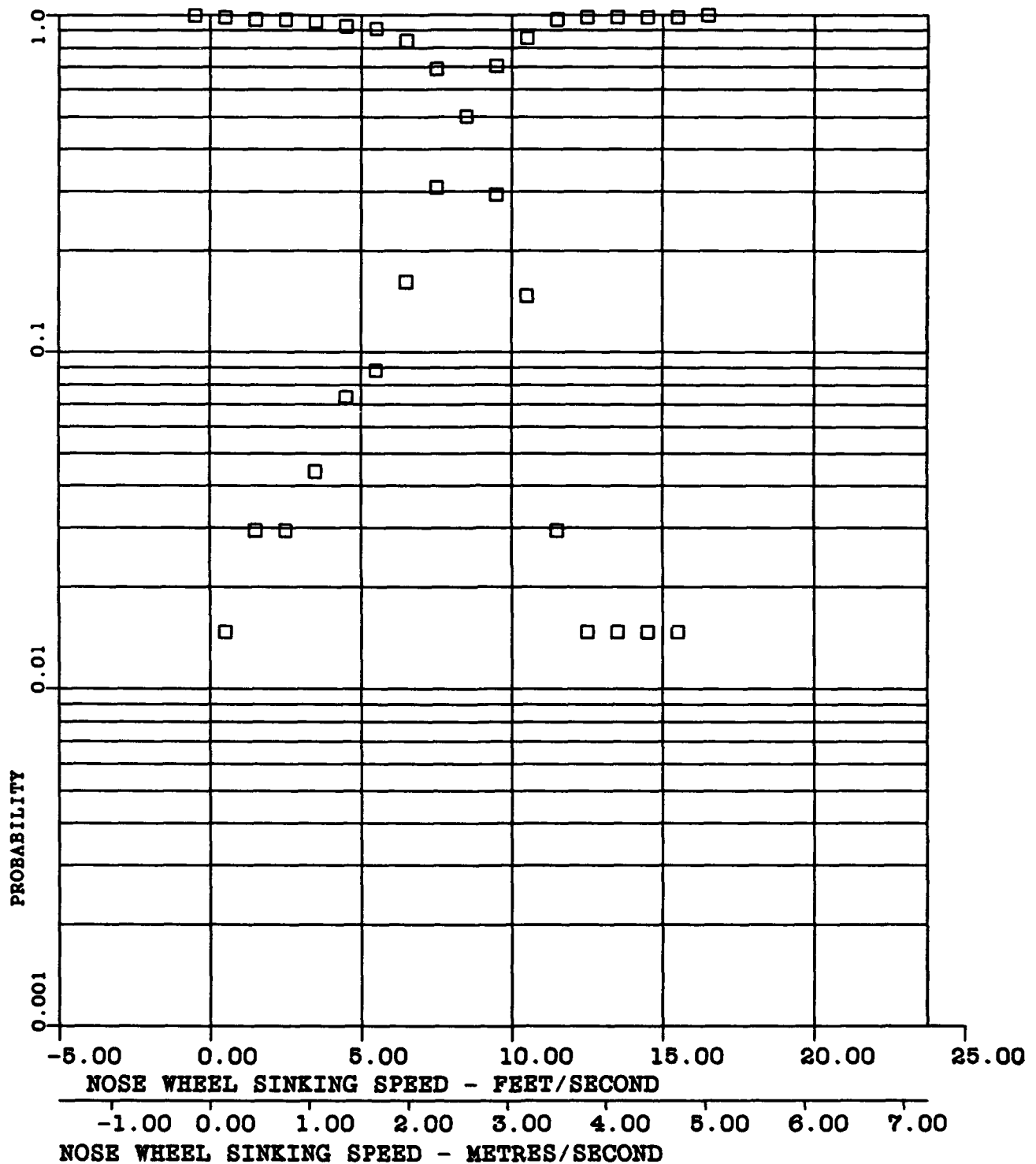


FIGURE F-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -9.95 FEET/SEC (3.03 METRES/SEC)

A3--.07

S-1.65 FEET/SEC (.50 METRES/SEC)

A4-2.72

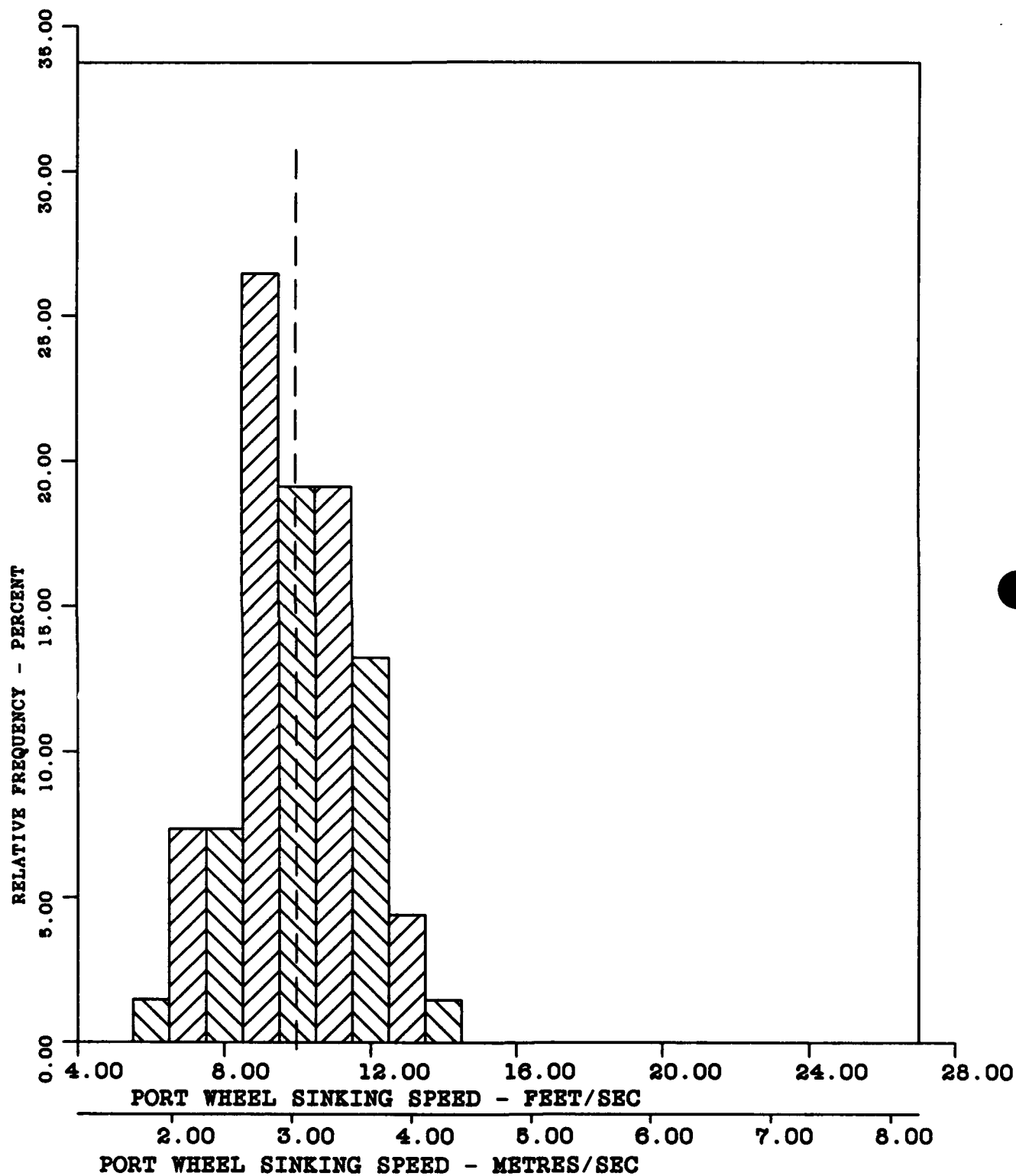


FIGURE F-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -9.95 FEET/SEC (3.03 METRES/SEC)

A3--.07

S-1.65 FEET/SEC (.50 METRES/SEC)

A4-2.72

CURVE FITTED - NORMAL

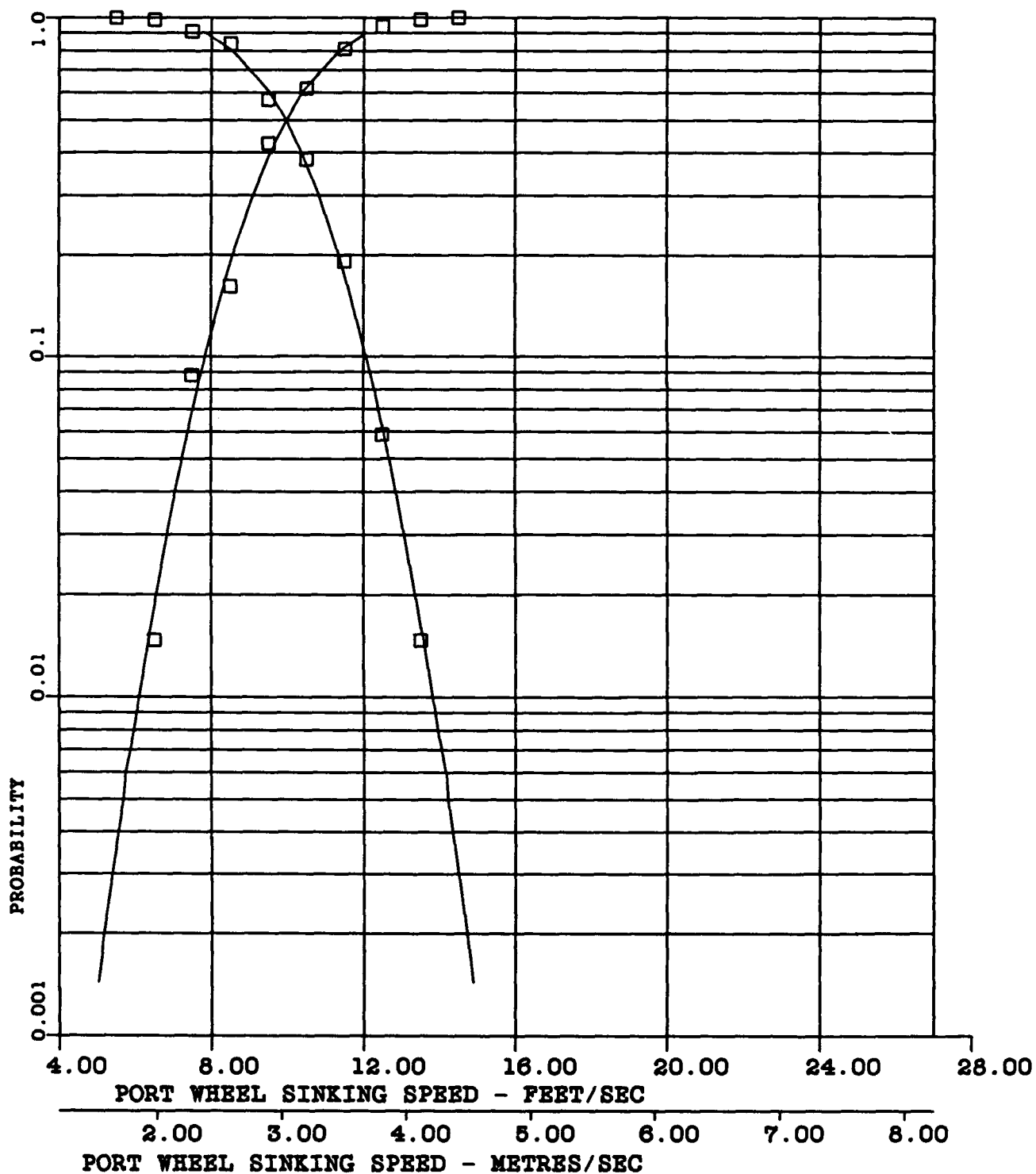


FIGURE F-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ =9.75 FEET/SEC (2.97 METRES/SEC)

A3=.05

S=1.40 FEET/SEC (.42 METRES/SEC)

A4=3.08

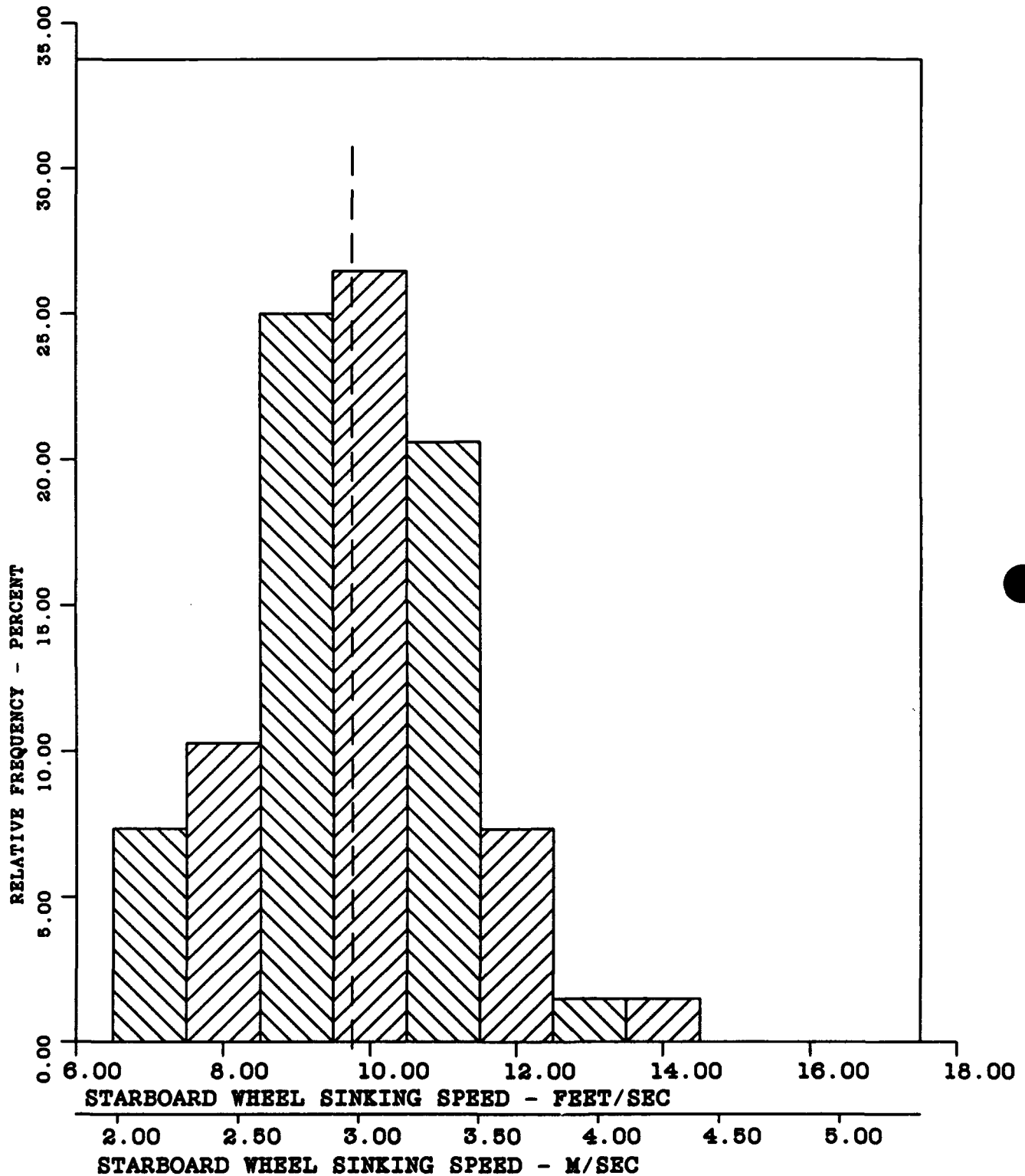


FIGURE F-11 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -9.75 FEET/SEC (2.97 METRES/SEC)

A3-.05

S-1.40 FEET/SEC (.42 METRES/SEC)

A4-3.08

CURVE FITTED - NORMAL

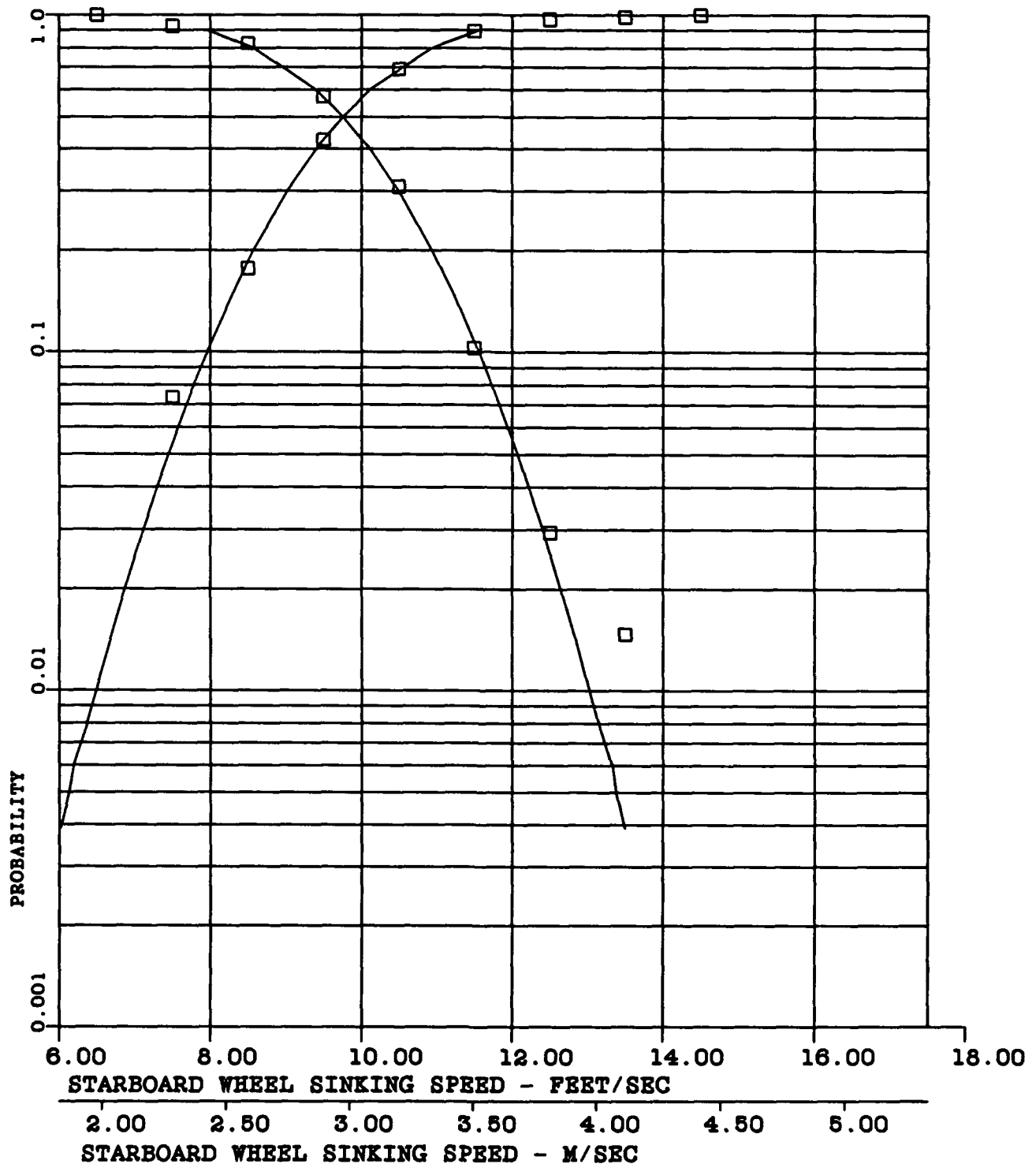


FIGURE F-12 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -9.87 FEET/SEC (3.00 METRES/SEC)

A3--.05

S-1.43 FEET/SEC (.43 METRES/SEC)

A4-3.13

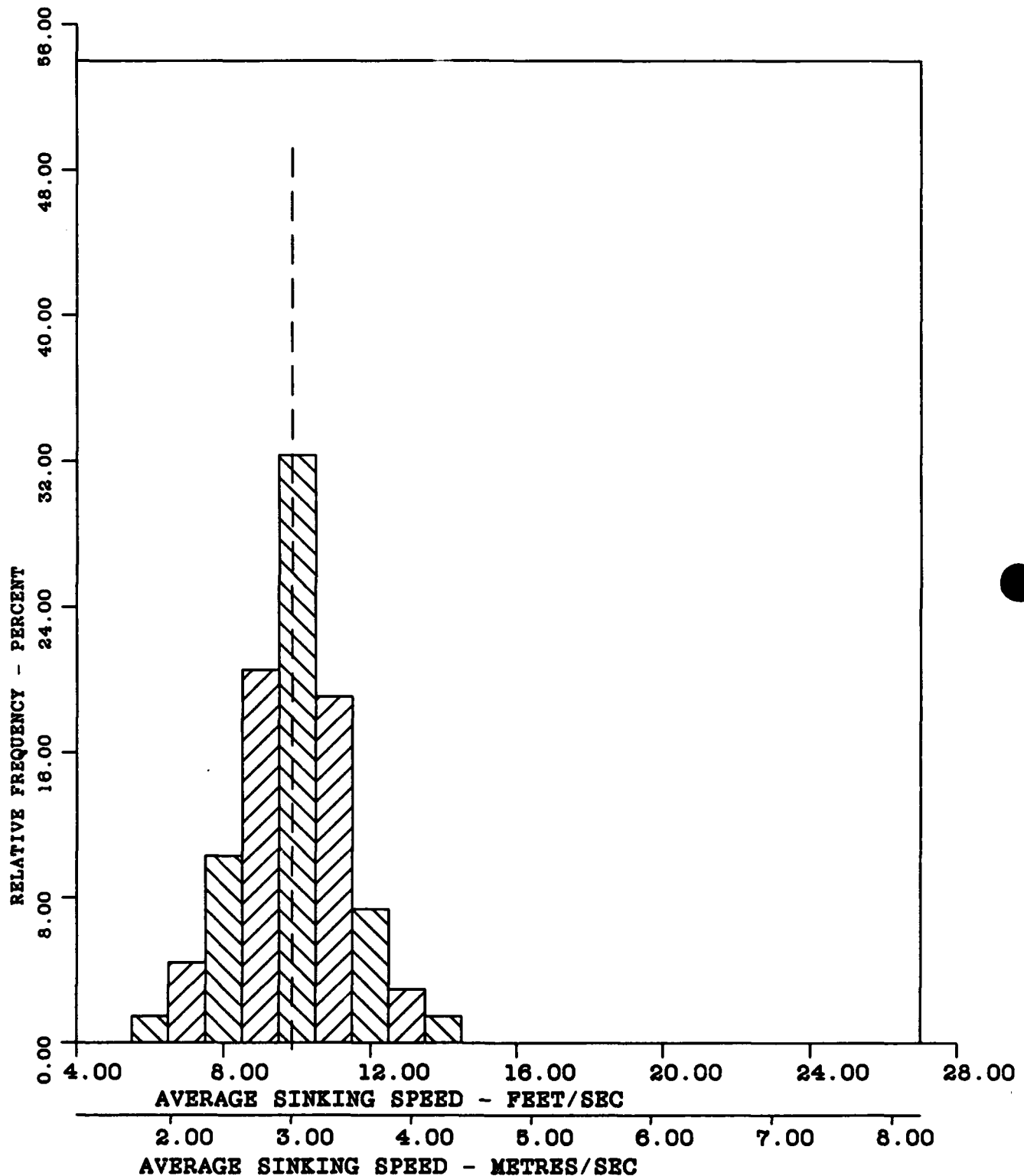


FIGURE F-13 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -9.87 FEET/SEC (3.00 METRES/SEC)

A3--.05

S-1.43 FEET/SEC (.43 METRES/SEC)

A4-3.13

CURVE FITTED - NORMAL

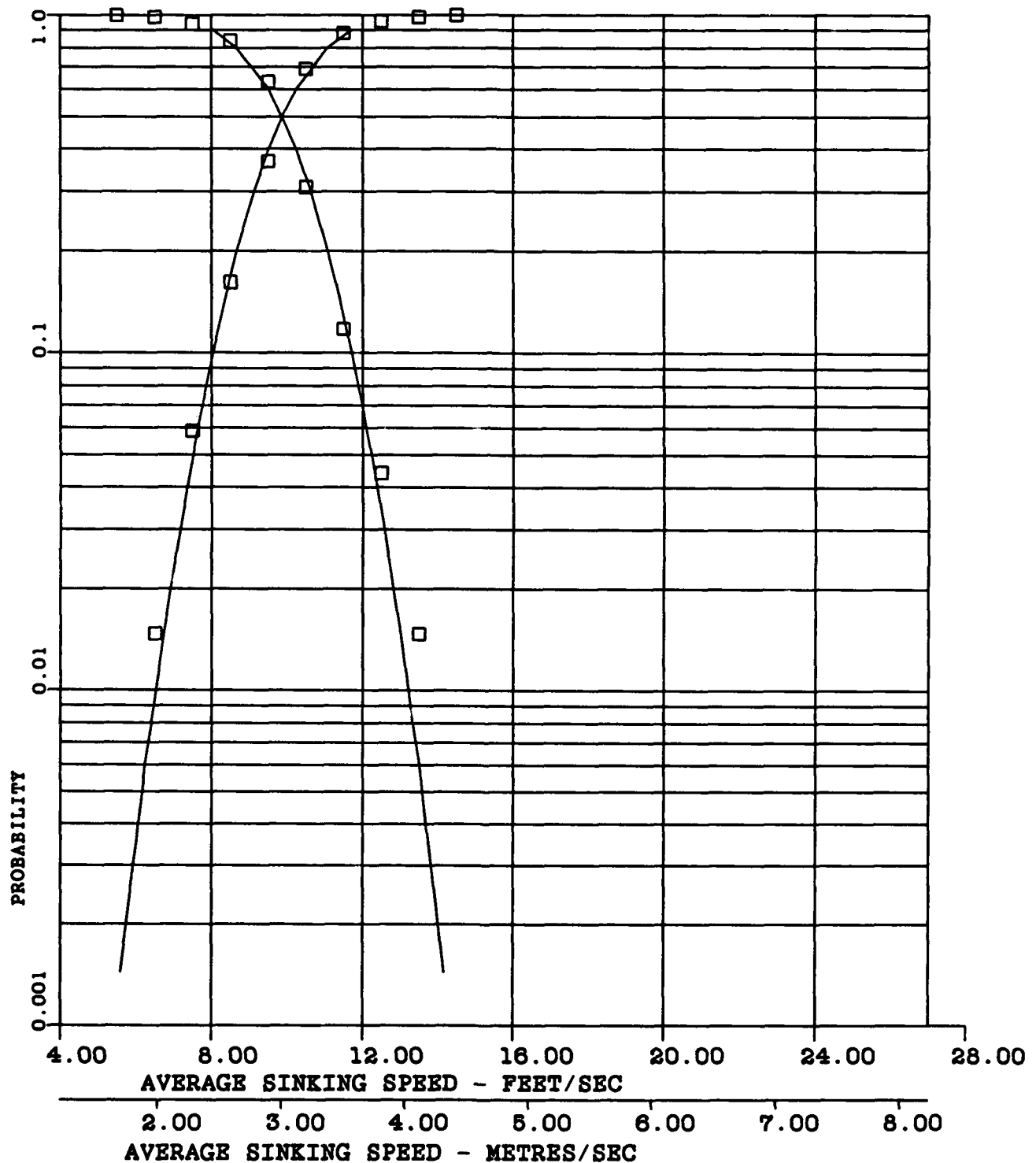


FIGURE F-14 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-6

 $\bar{X}$ -10.13 FEET/SEC (3.08 METRES/SEC)

A3-- .02

S-1.62 FEET/SEC (.49 METRES/SEC)

A4-1.66

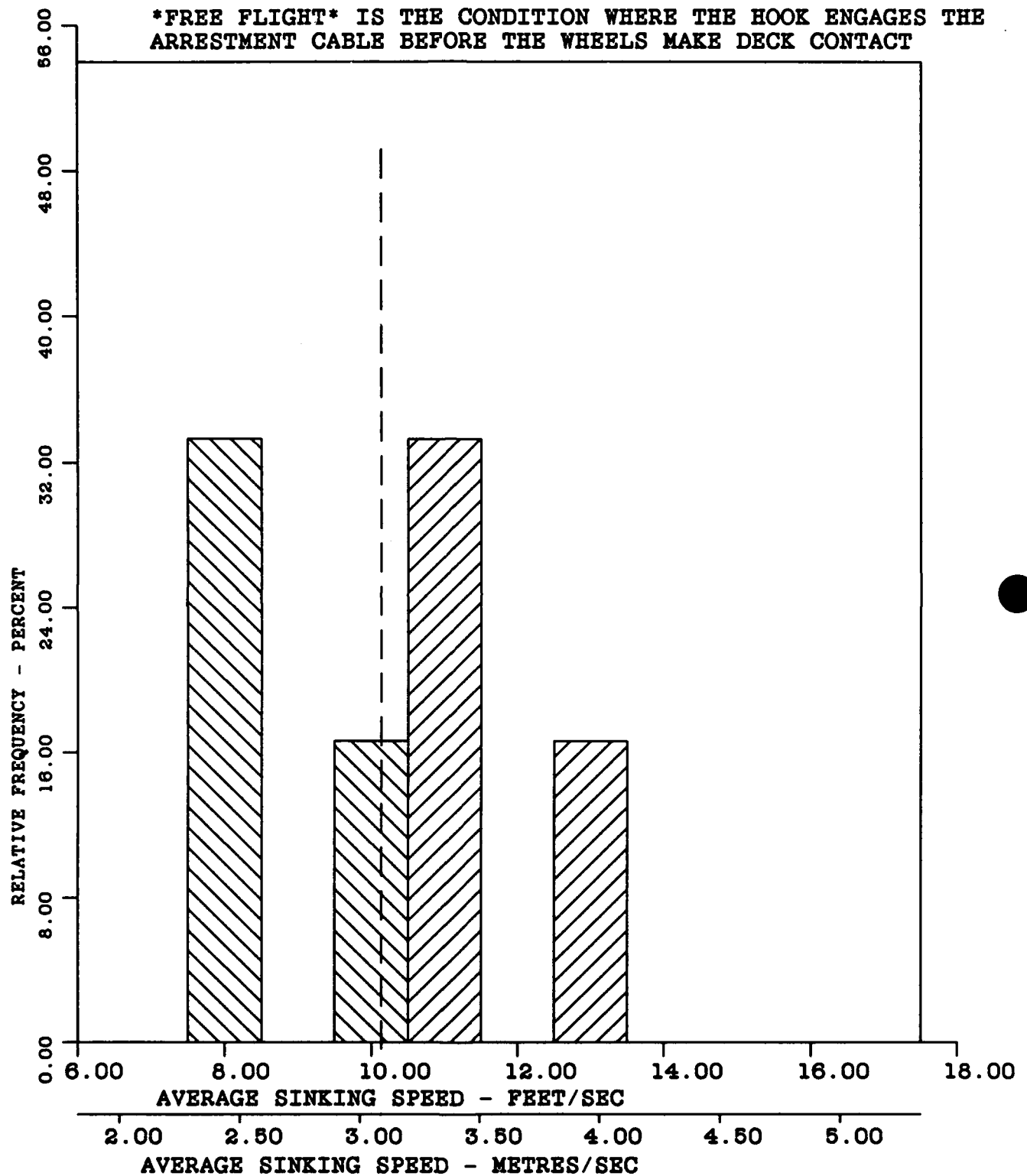


FIGURE F-15 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-6

 $\bar{X}$ -10.13 FEET/SEC (3.08 METRES/SEC)

A3--.02

S-1.62 FEET/SEC (.49 METRES/SEC)

A4-1.66

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

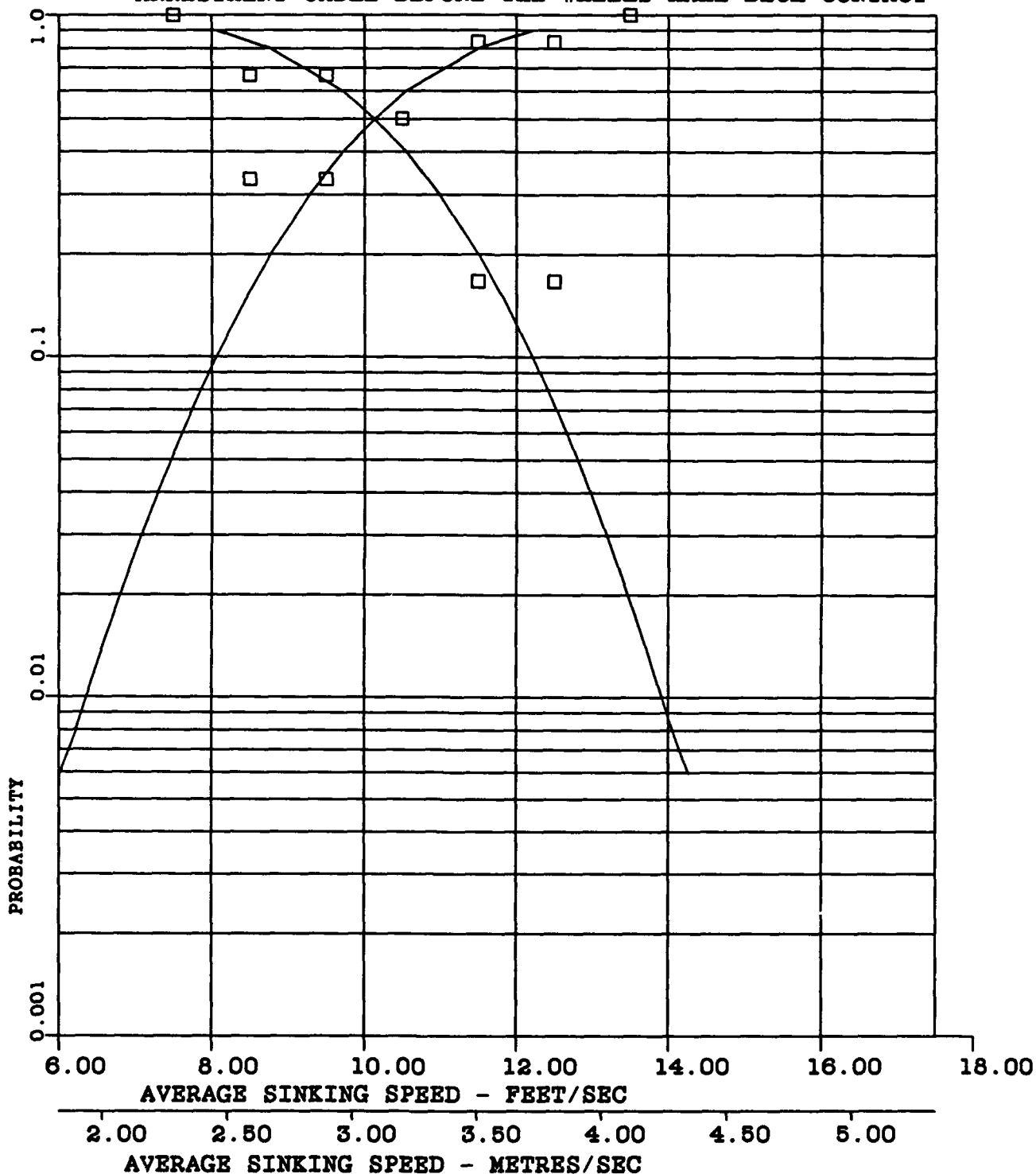


FIGURE F-16 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -1.01

S-.07

A3--.05

A4-2.33

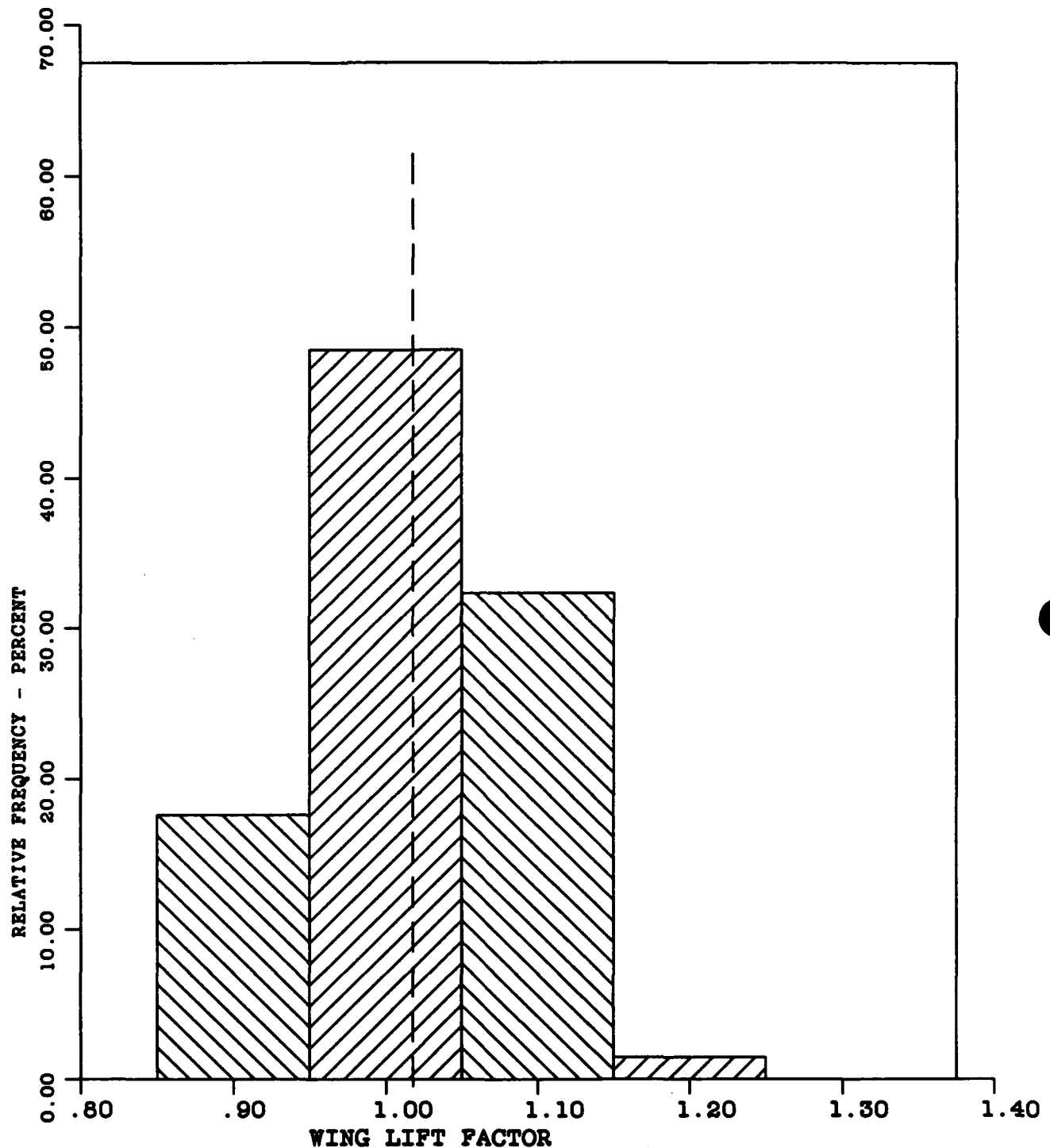


FIGURE F-17 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -1.01

S-.07

CURVE FITTED - NORMAL

A3--.05

A4-2.33

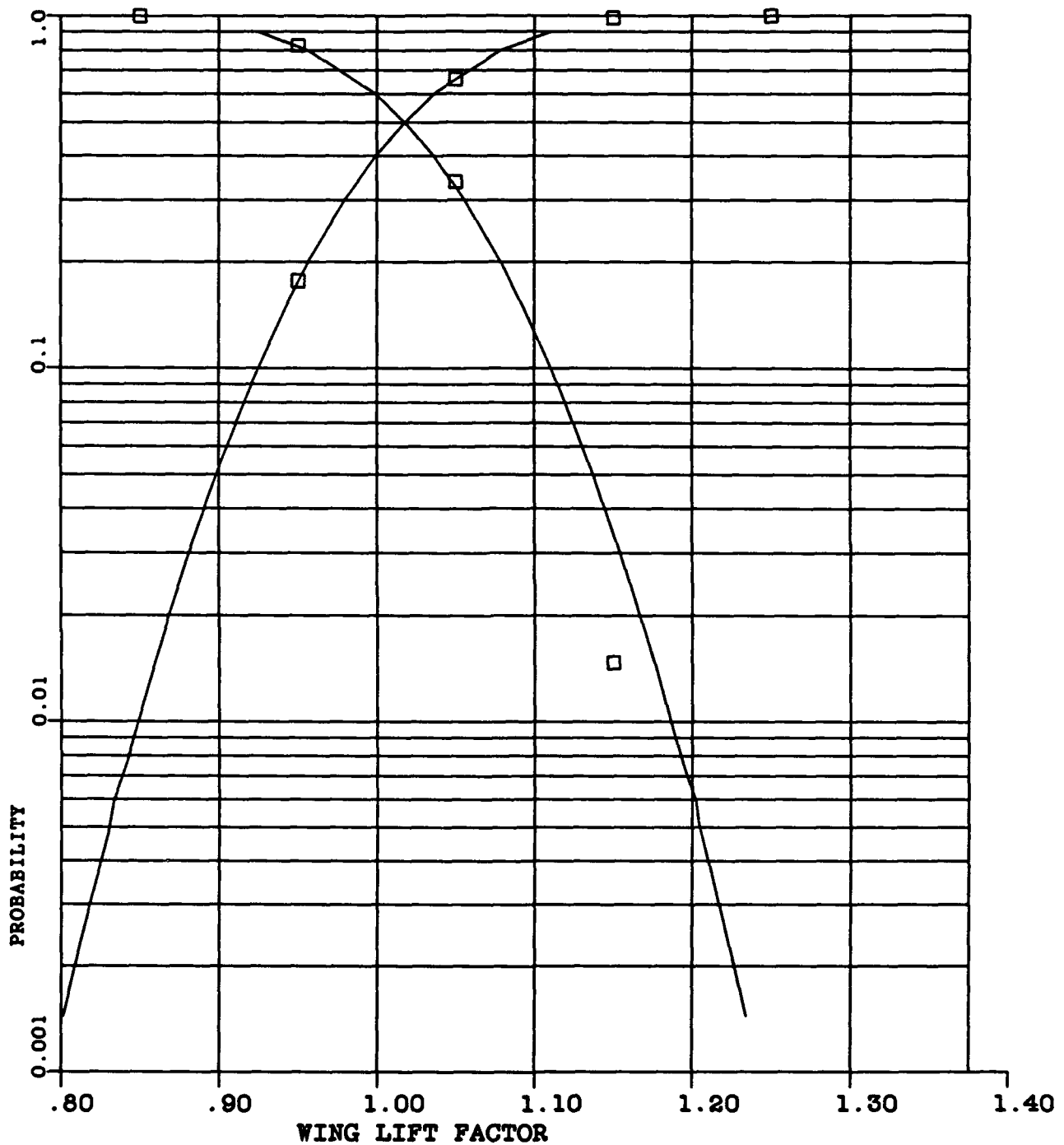


FIGURE F-18 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-6

 $\bar{X}$ -1.01

S-.06

A3--.22

A4-2.10

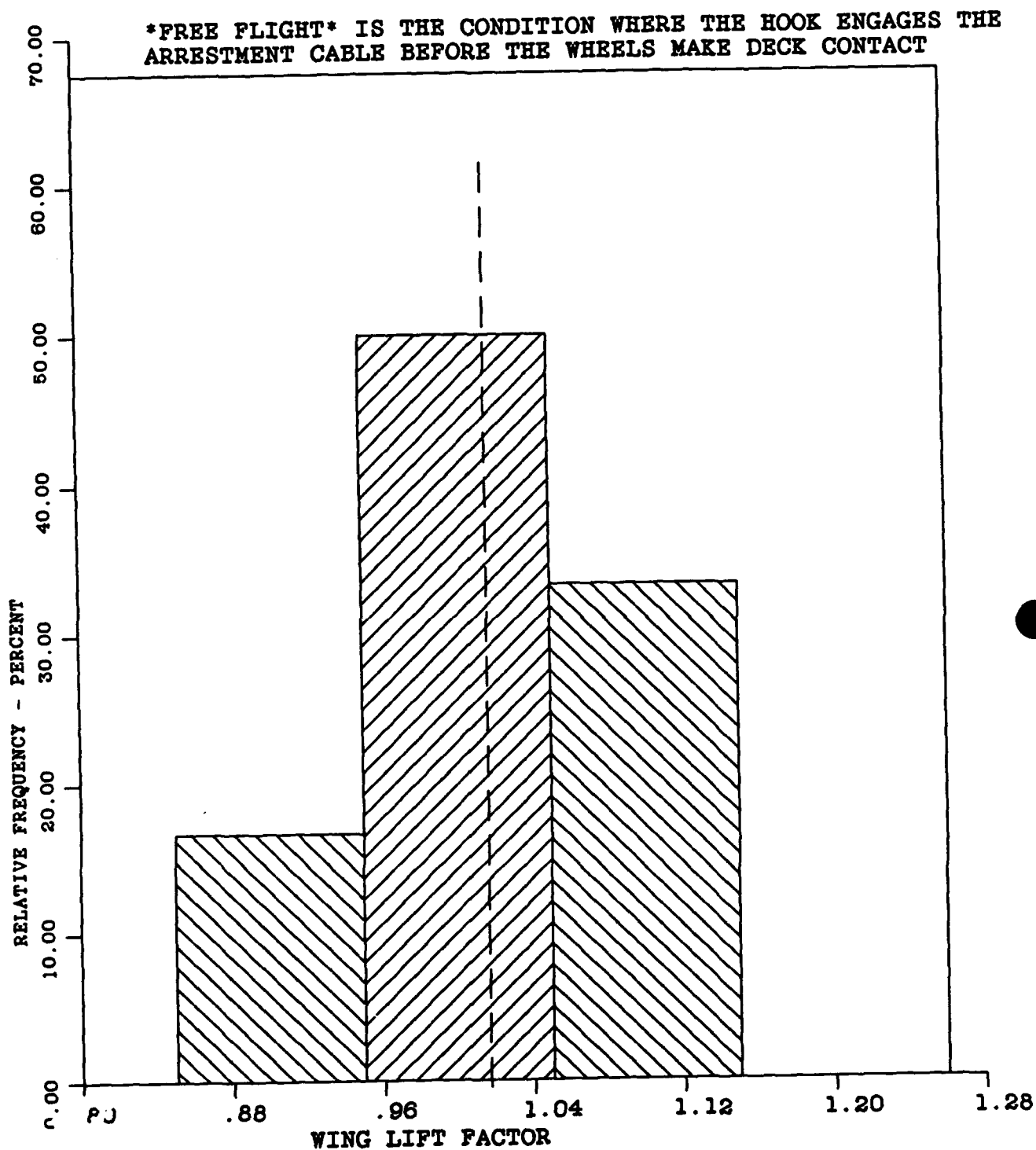


FIGURE F-19 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-6

 $\bar{X}=1.01$ 

A3--.22

S=.06

A4-2.10

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

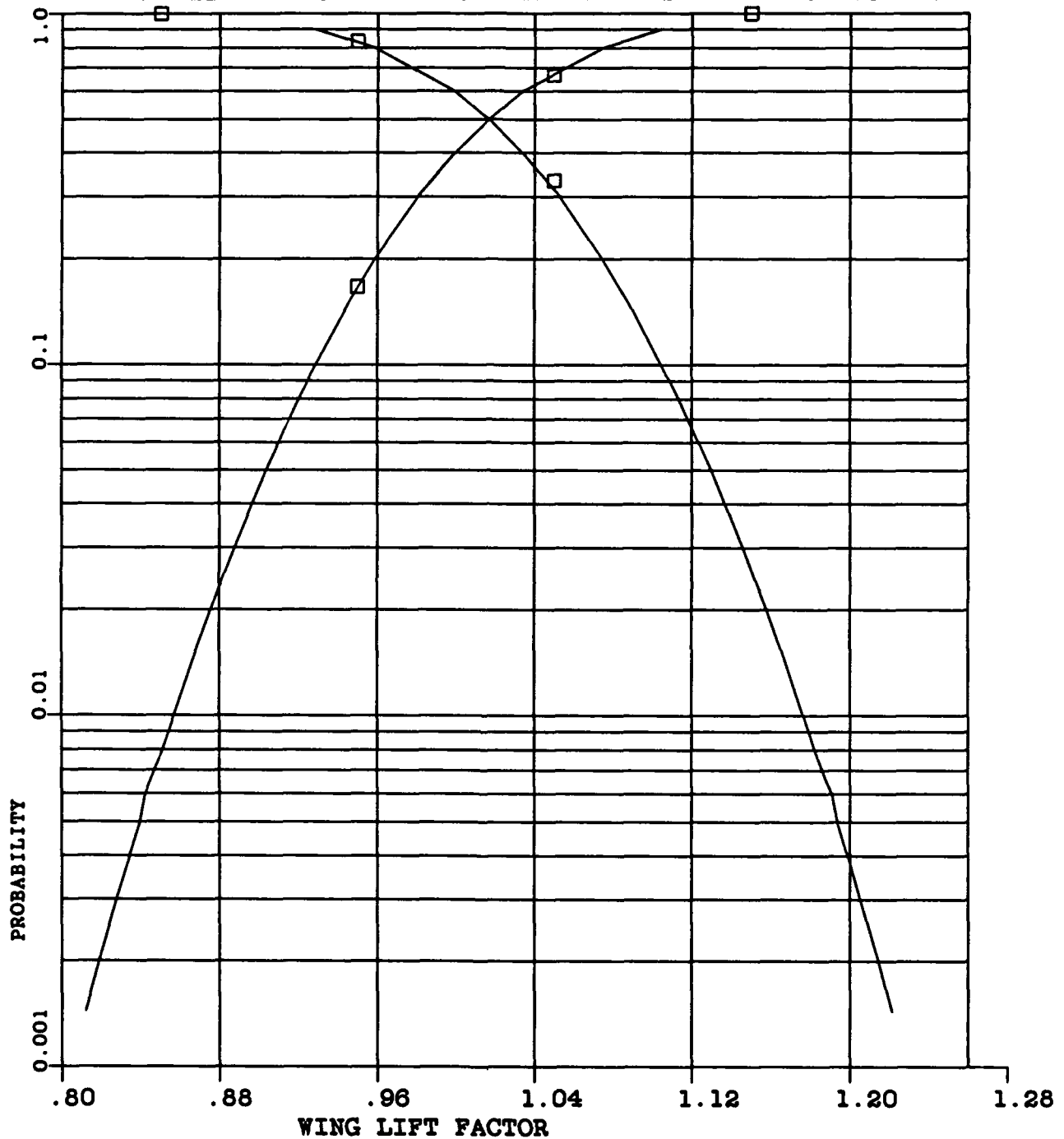


FIGURE F-20 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -9.76 DEGREES (.170 RADIANS)

A3-.00

S-.88 DEGREES (.015 RADIANS)

A4-3.24

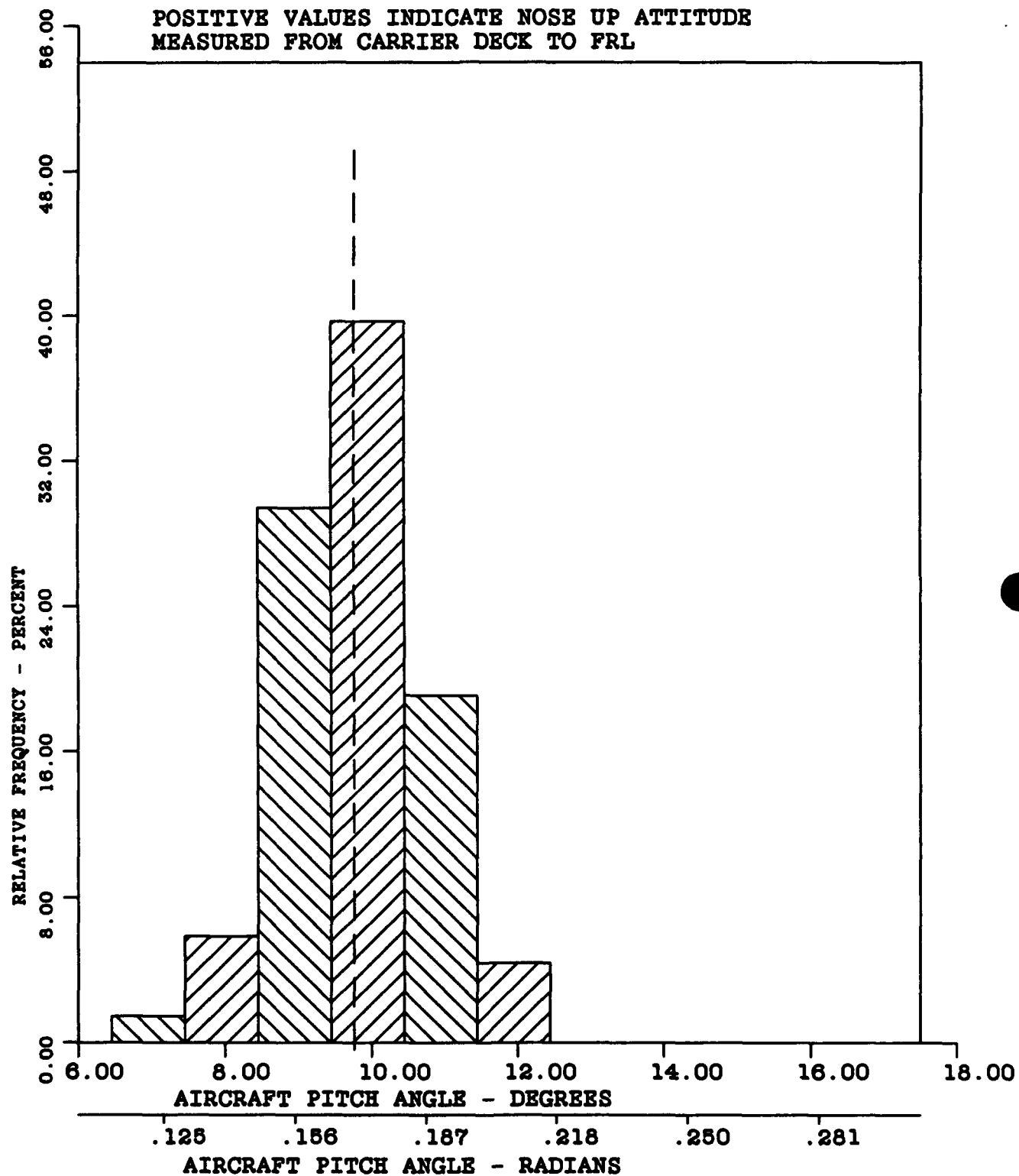


FIGURE F-21 FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

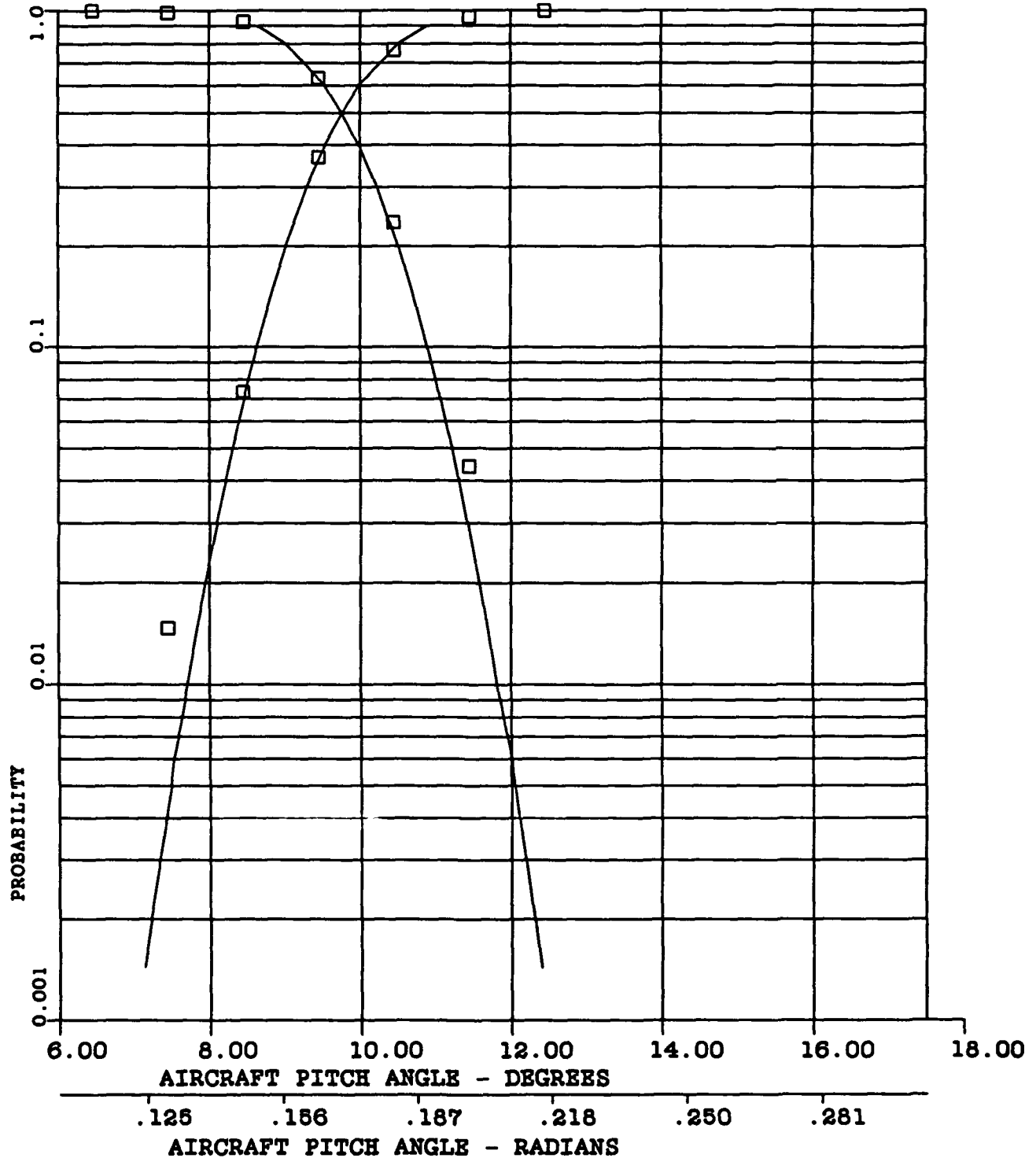
 $\bar{X}$ -9.76 DEGREES (.170 RADIANS)

A3-.00

S-.88 DEGREES (.015 RADIANS)

A4-3.24

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRLFIGURE F-22 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -8.32 DEGREES (.145 RADIANS)

A3--.27

S-1.16 DEGREES (.020 RADIANS)

A4-2.60

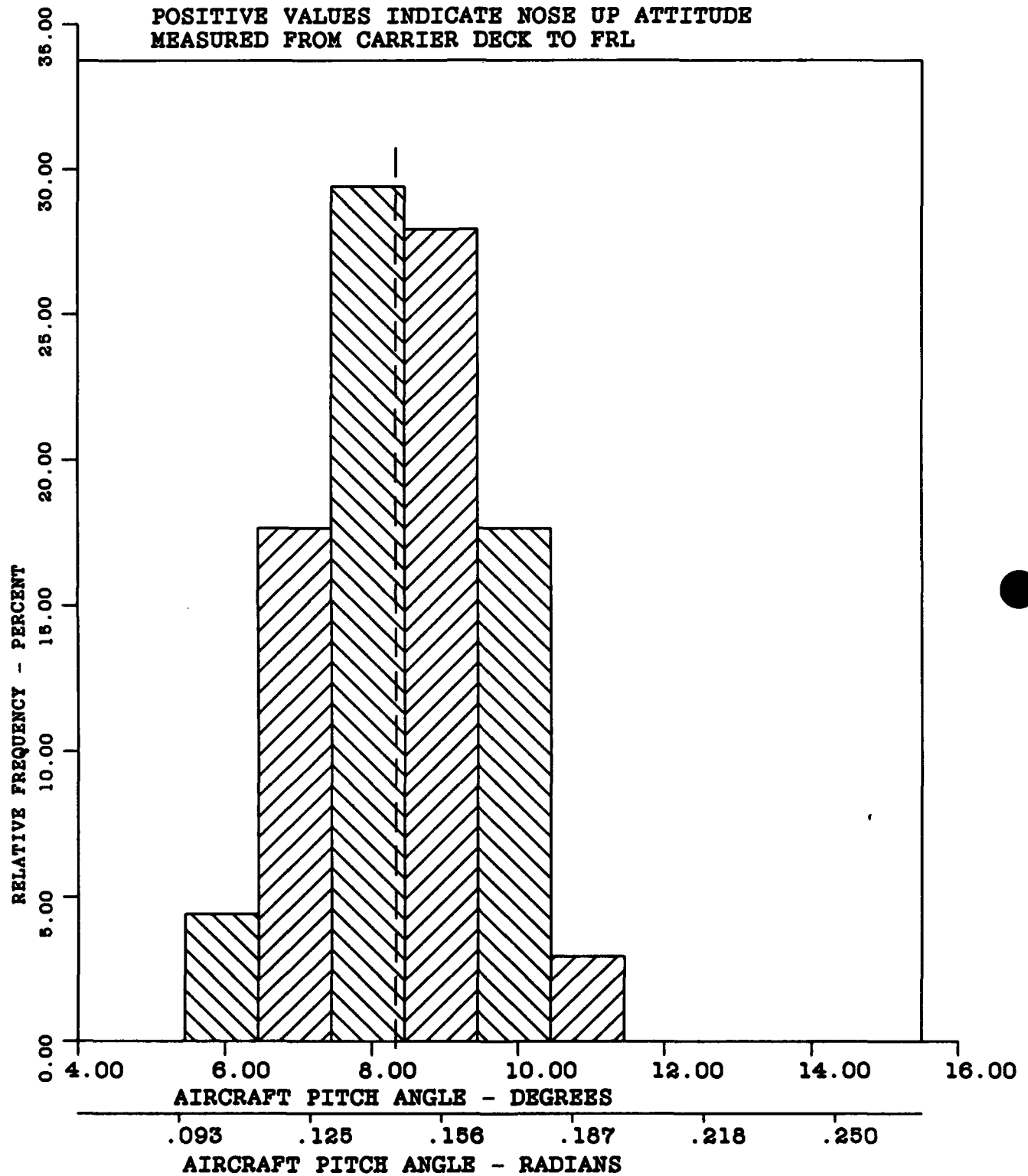


FIGURE F-23 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -8.32 DEGREES (.145 RADIANS)

A3--.27

S-1.16 DEGREES (.020 RADIANS)

A4-2.60

CURVE FITTED - NORMAL

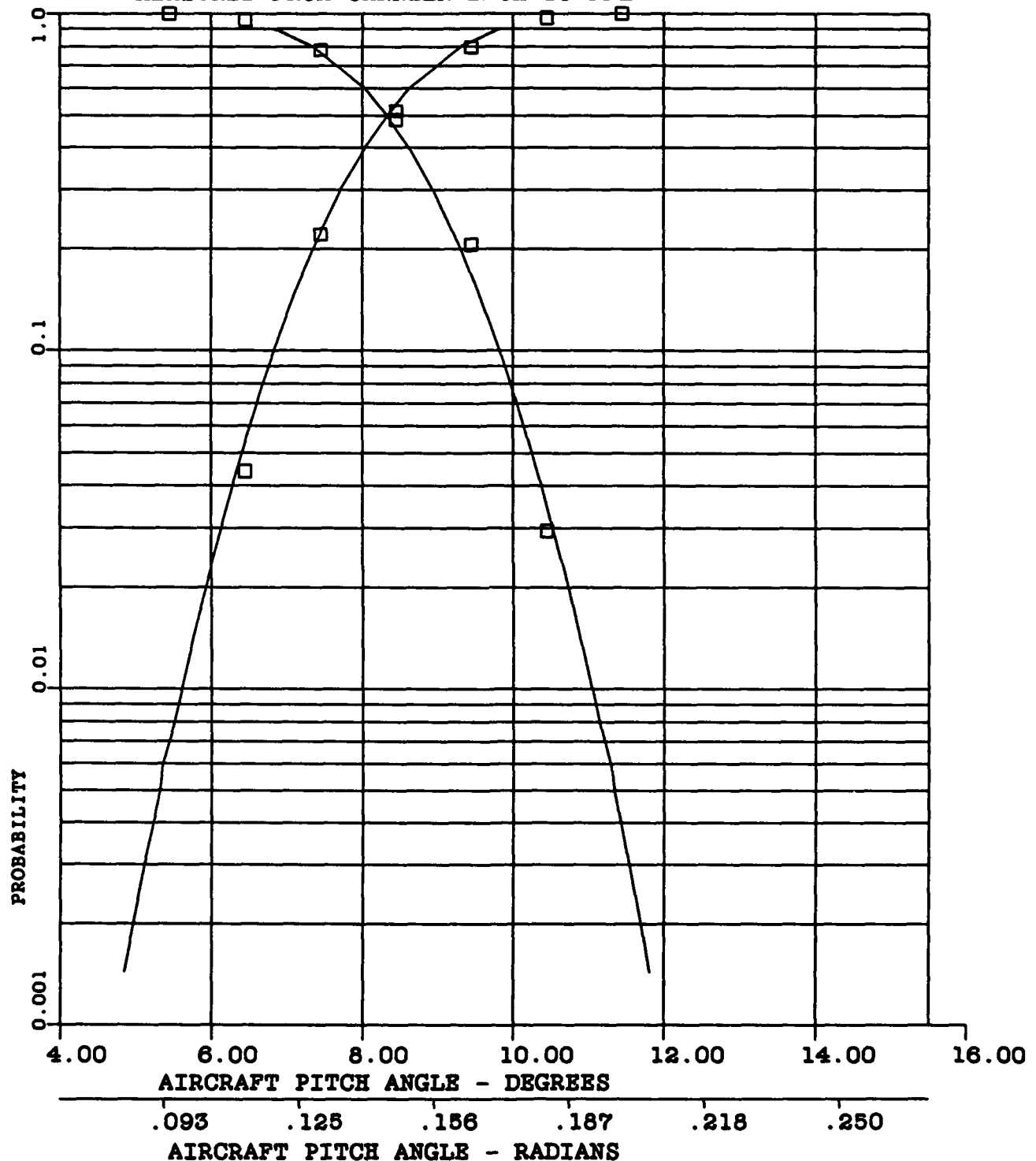
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE F-24 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-6

 $\bar{X}$ -8.63 DEGREES (.150 RADIANS)

A3--.17

S-1.15 DEGREES (.020 RADIANS)

A4-1.43

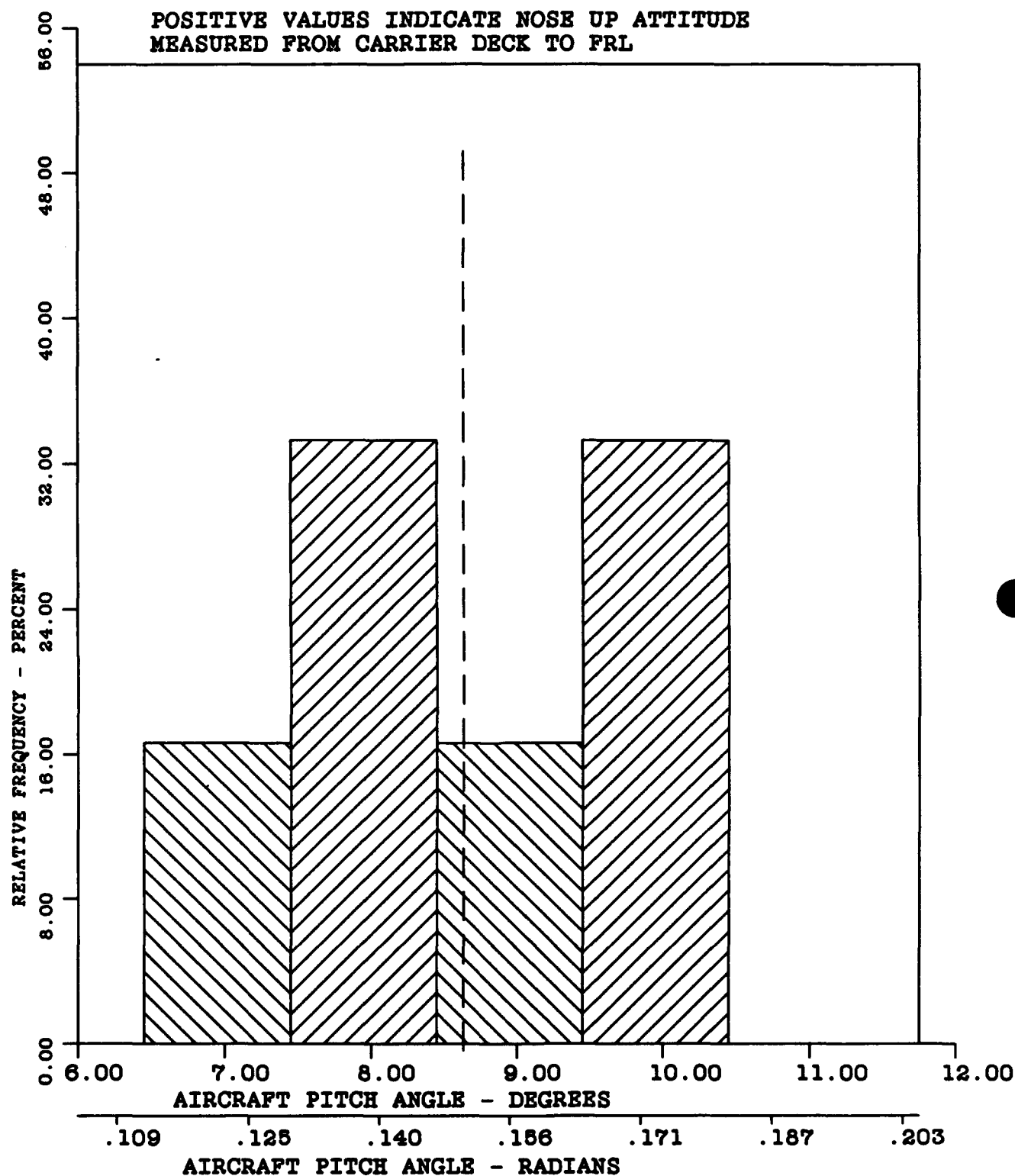


FIGURE F-25 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-6  $\bar{X}$ -8.63 DEGREES (.150 RADIANS)

A3--.17

S-1.15 DEGREES (.020 RADIANS)

A4-1.43

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE

MEASURED FROM CARRIER DECK TO FRL

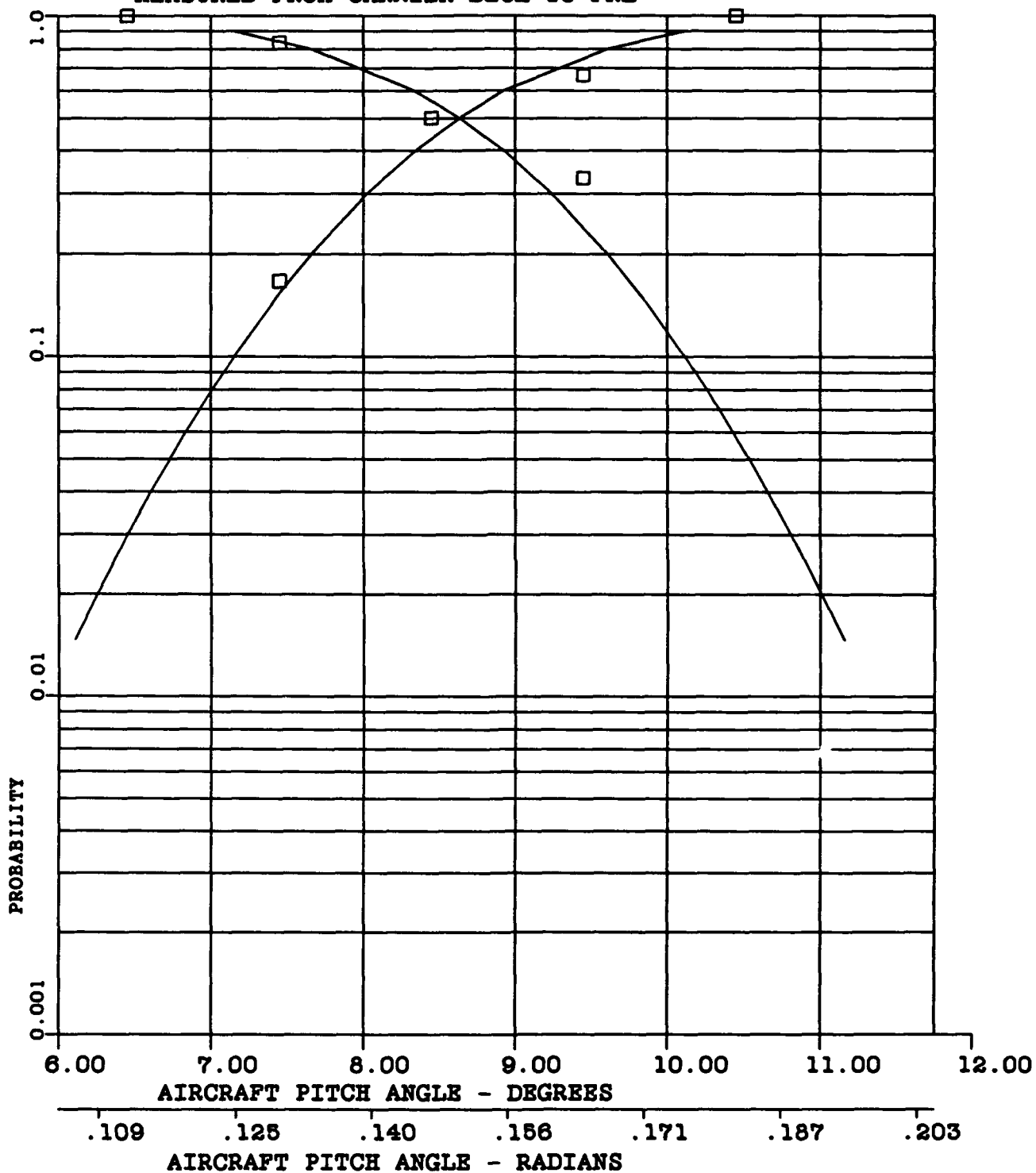


FIGURE F-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -.41 DEGREES (.007 RADIANS)

A3-.85

S-2.17 DEGREES (.037 RADIANS)

A4-4.10

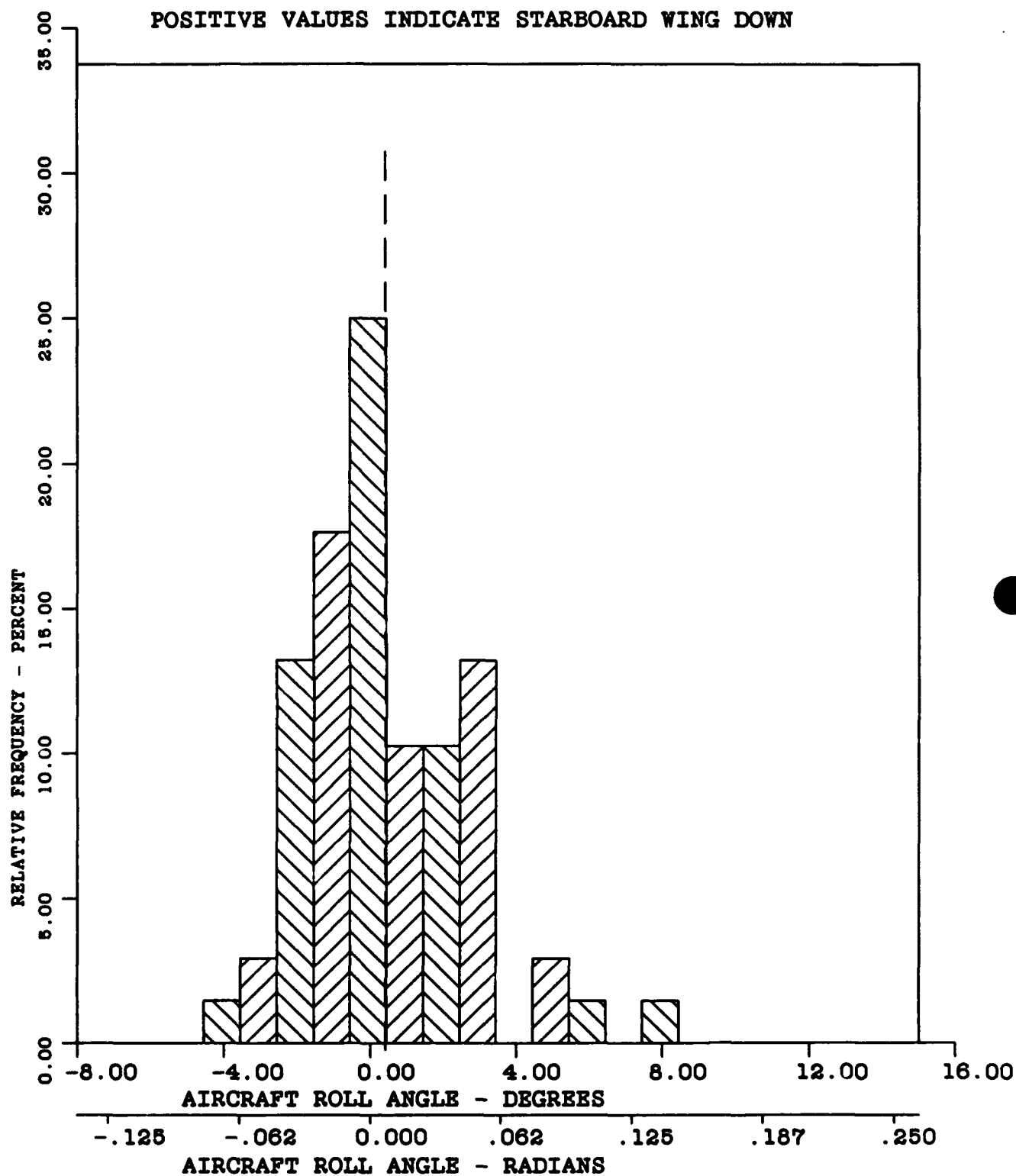


FIGURE F-27 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -.41 DEGREES (.007 RADIANS)

A3-.85

S=2.17 DEGREES (.037 RADIANS)

A4=4.10

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

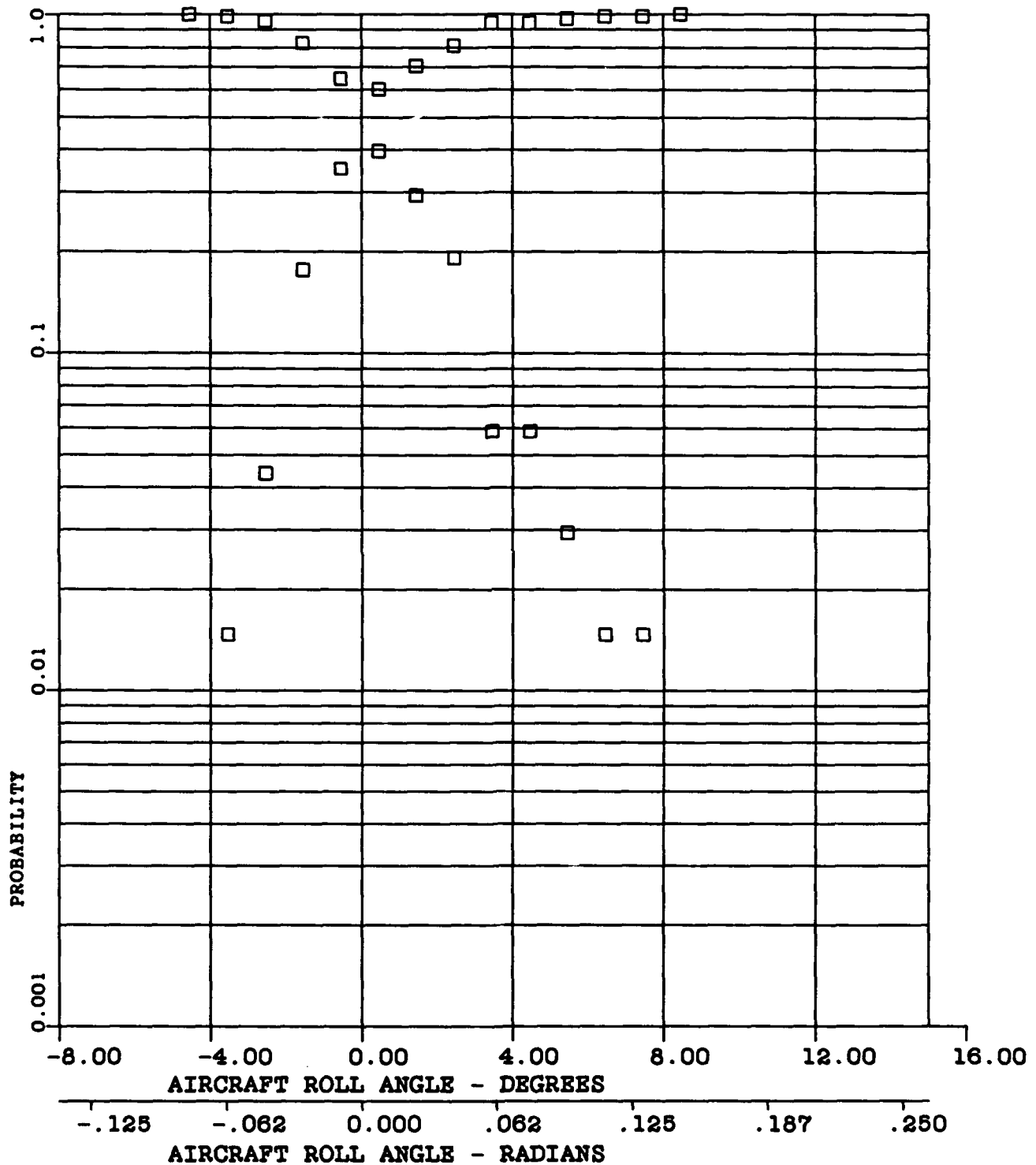


FIGURE F-28 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -.22 DEGREES (.003 RADIANS)

A3-1.28

S-1.78 DEGREES (.031 RADIANS)

A4-6.25

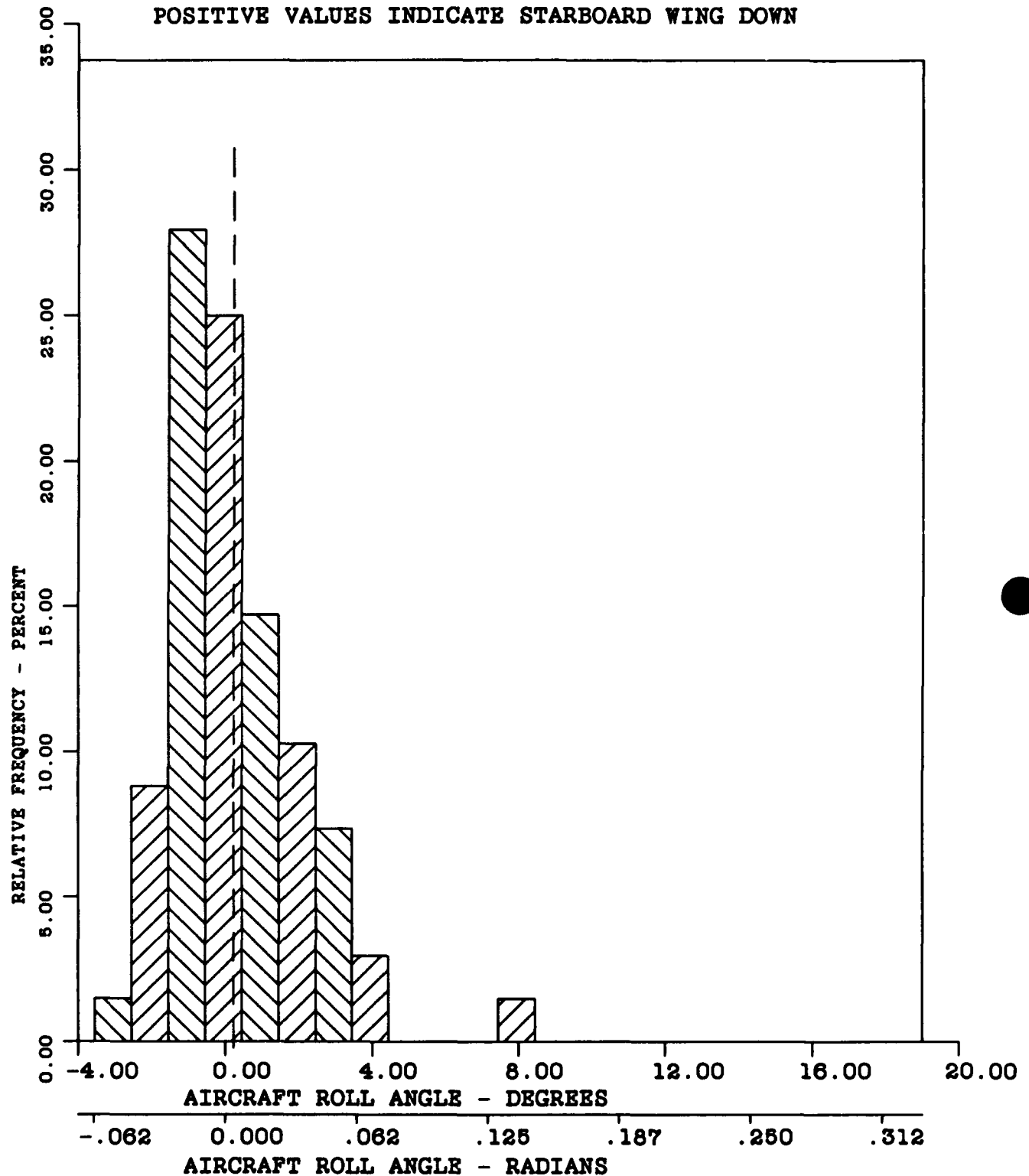


FIGURE F-29 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -.22 DEGREES (.003 RADIANS)

A3-1.28

S-1.78 DEGREES (.031 RADIANS)

A4-6.25

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

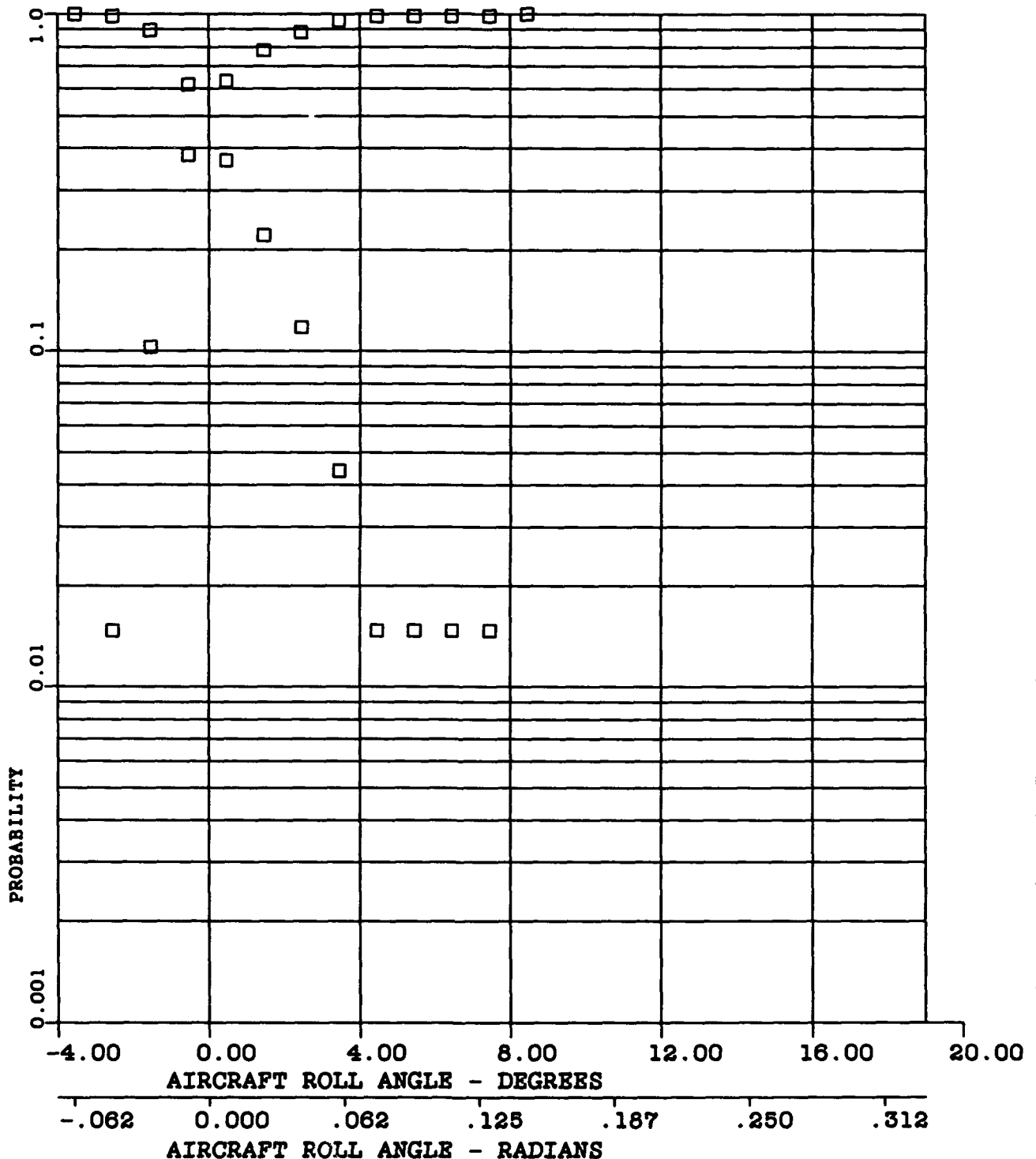


FIGURE F-30 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-6

 $\bar{X}$ -.33 DEGREES (.005 RADIANS)

A3--.11

S-1.58 DEGREES (.027 RADIANS)

A4-1.82

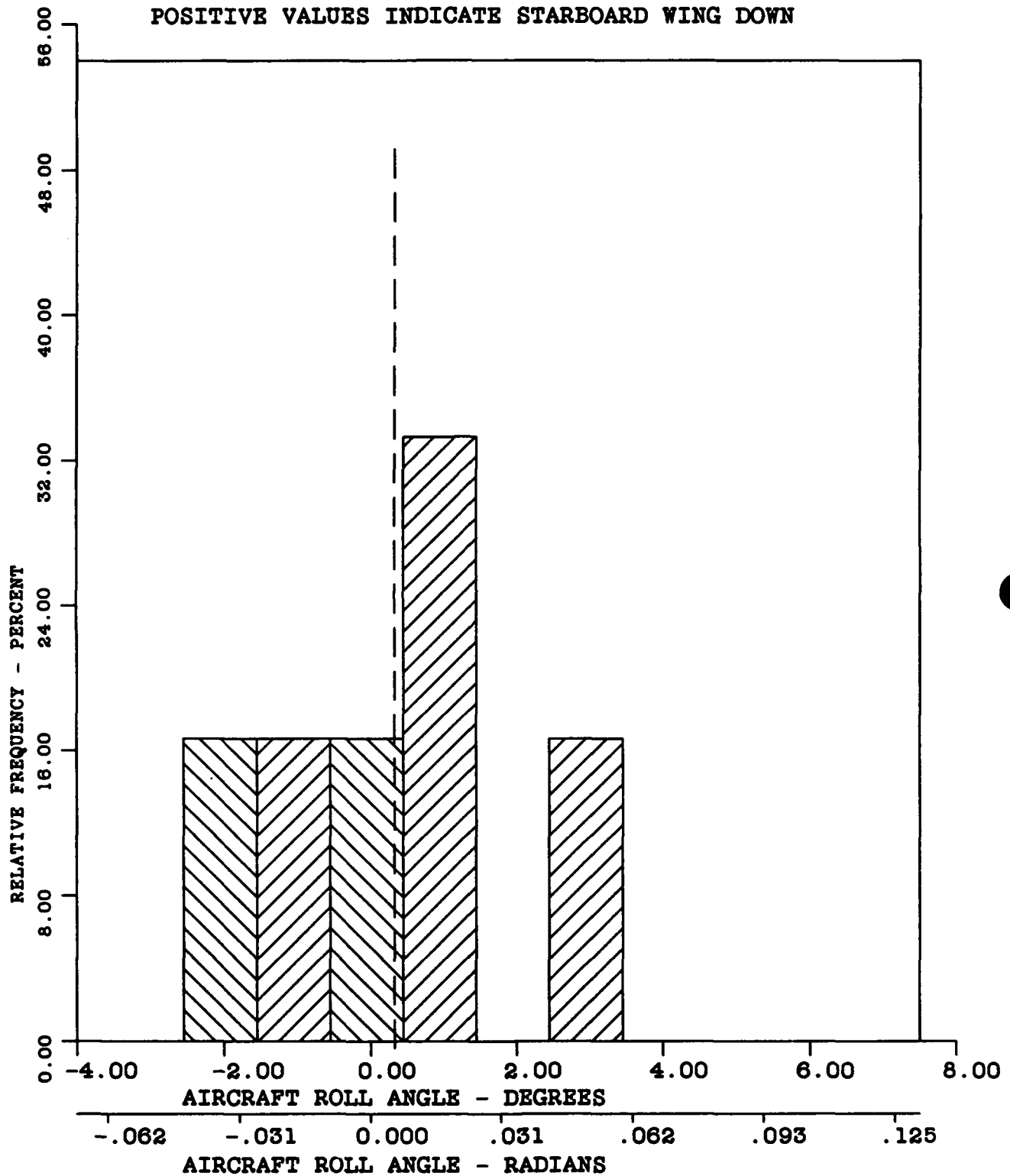


FIGURE F-31 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-6

 $\bar{X}$ -.33 DEGREES (.005 RADIANS)

A3--.11

S-1.58 DEGREES (.027 RADIANS)

A4-1.82

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

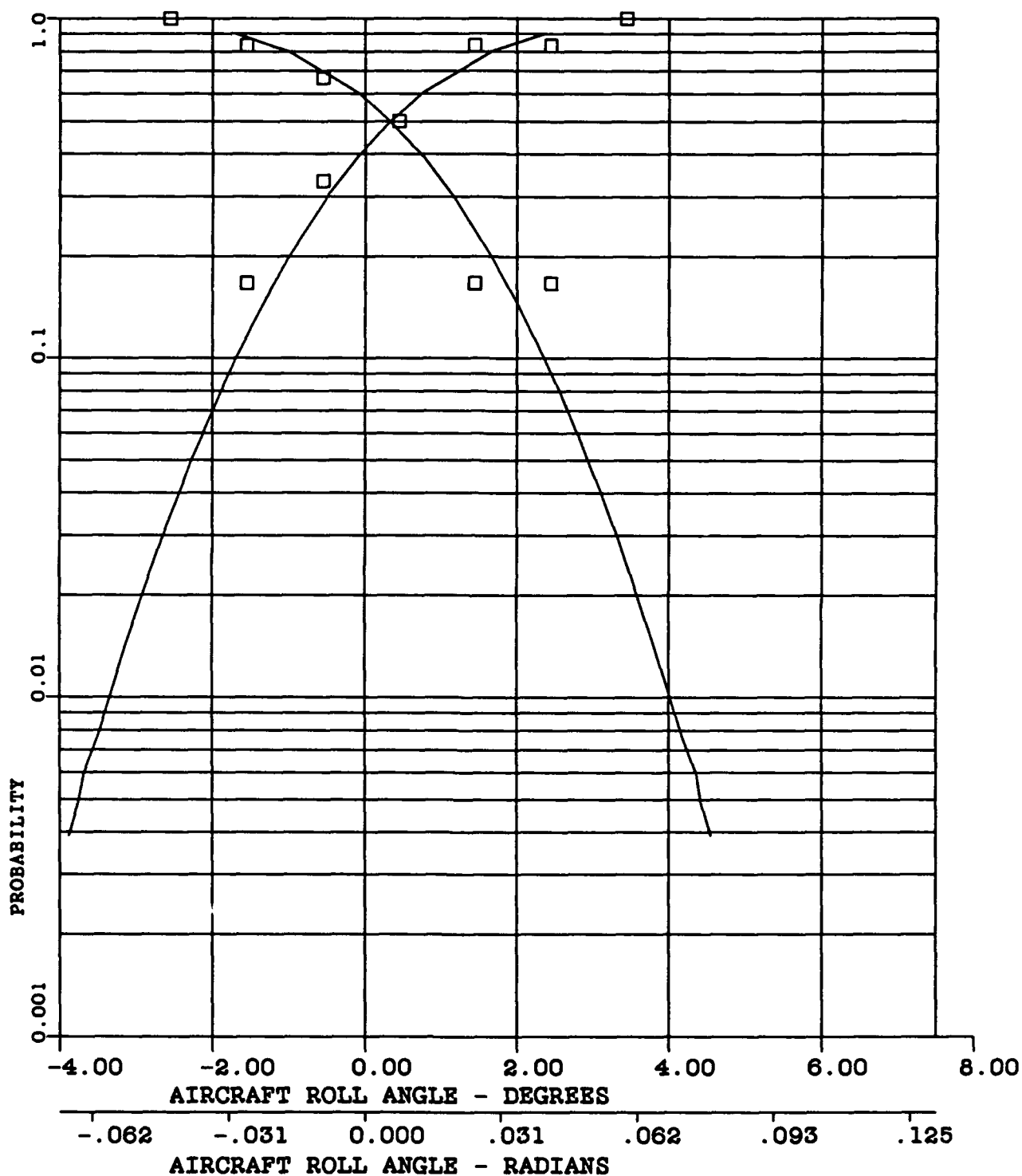


FIGURE F-32 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -267.85 FEET (81.64 METRES)

A3--.20

S-23.26 FEET (7.09 METRES)

A4-3.53

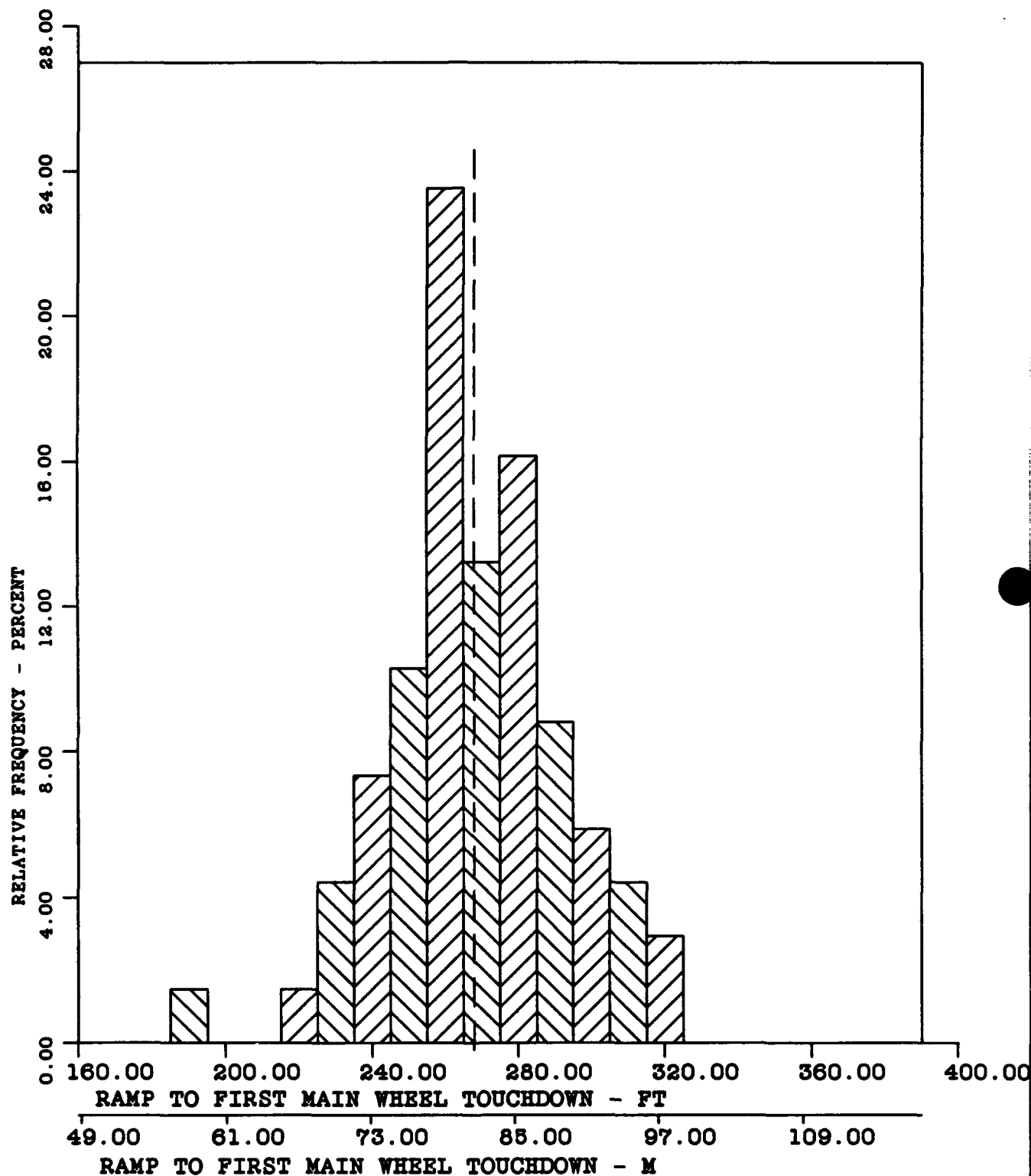


FIGURE F-33 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -267.85 FEET (81.64 METRES)

A3--.20

S-23.26 FEET (7.09 METRES)

A4-3.53

CURVE FITTED - NORMAL

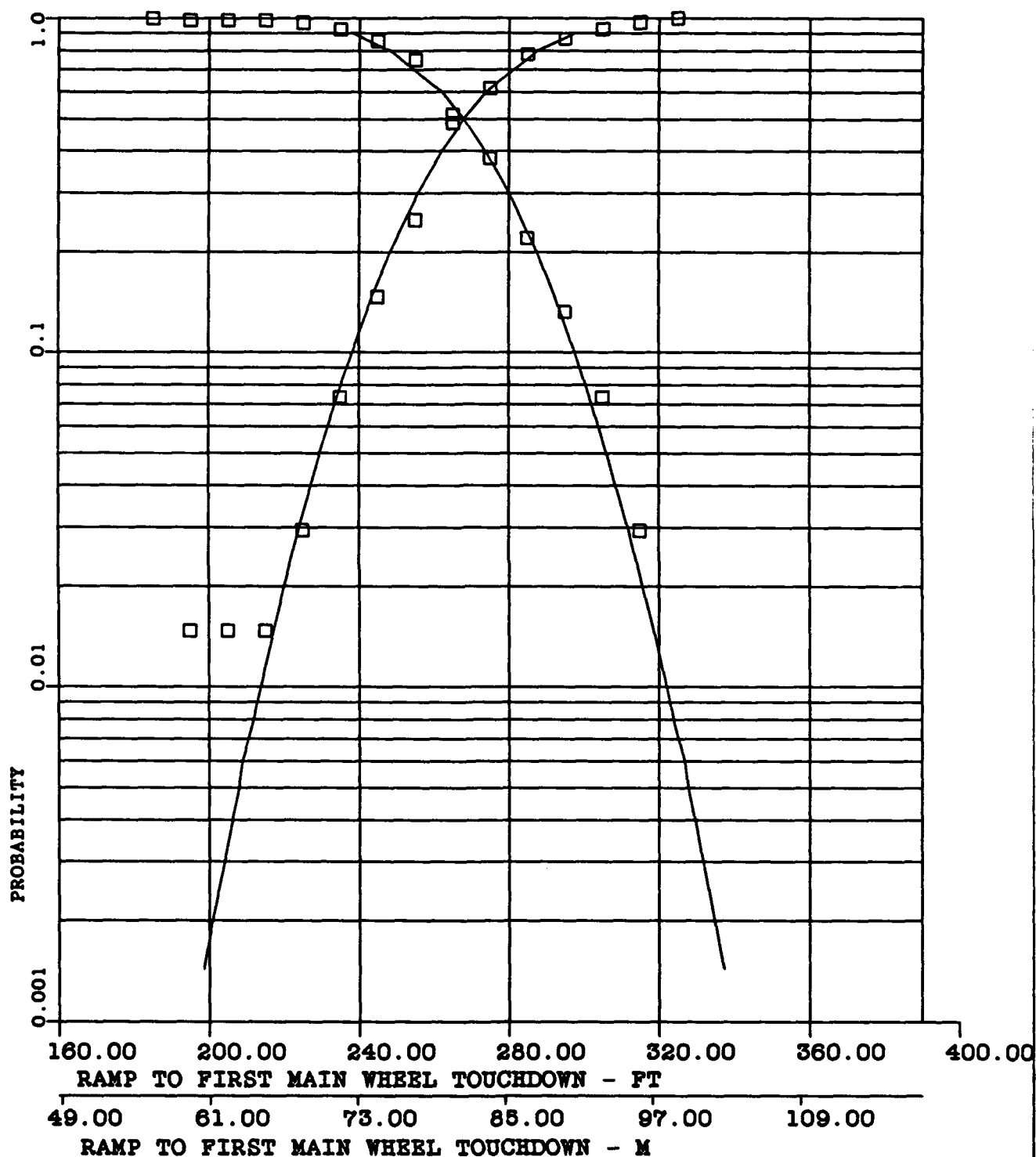


FIGURE F-34 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -10.79 FEET (-3.29 METRES)

A3-.64

S-2.87 FEET (.87 METRES)

A4-3.76

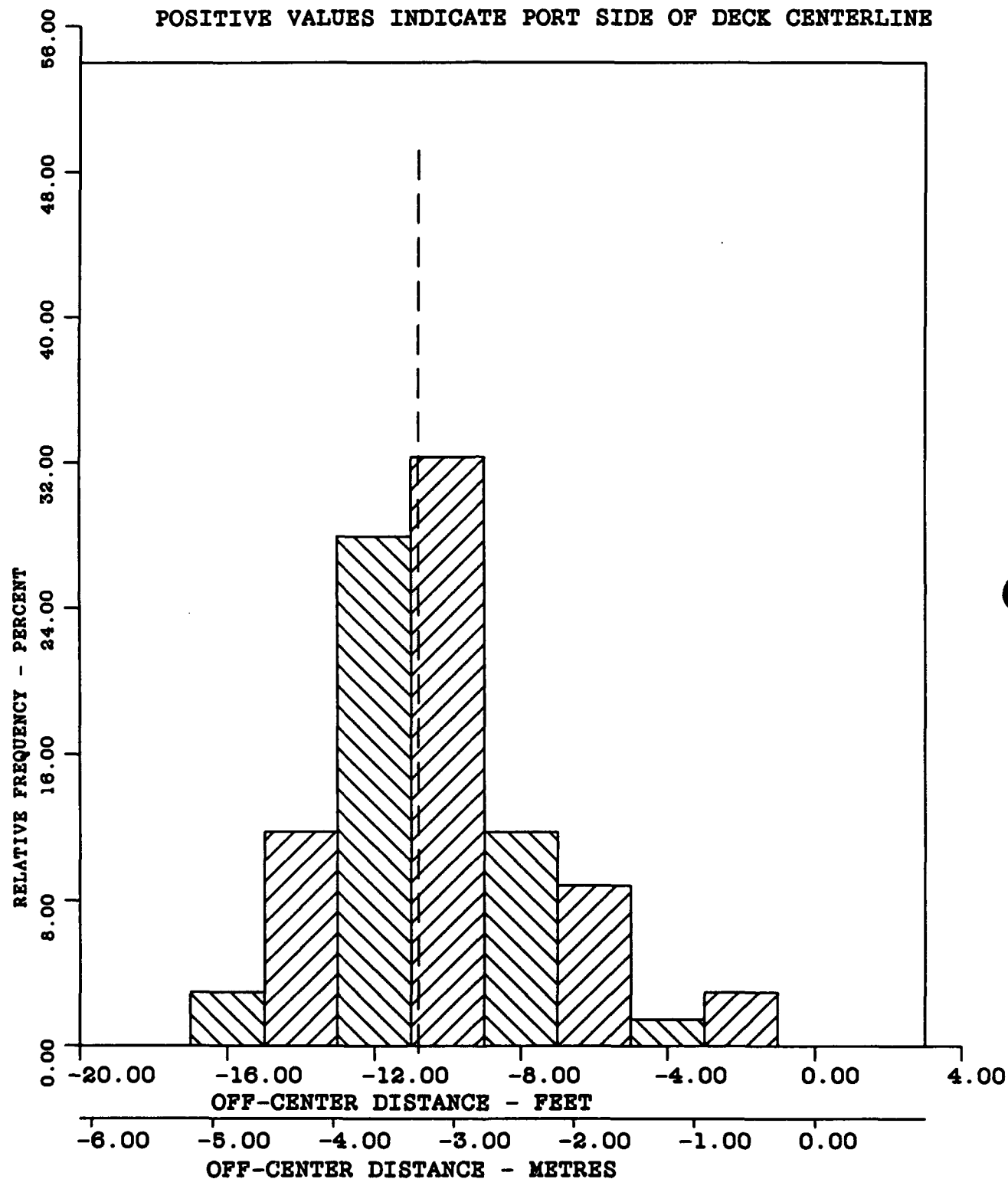


FIGURE F-35 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -10.79 FEET (-3.29 METRES)

A3-.64

S-2.87 FEET (.87 METRES)

A4-3.76

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

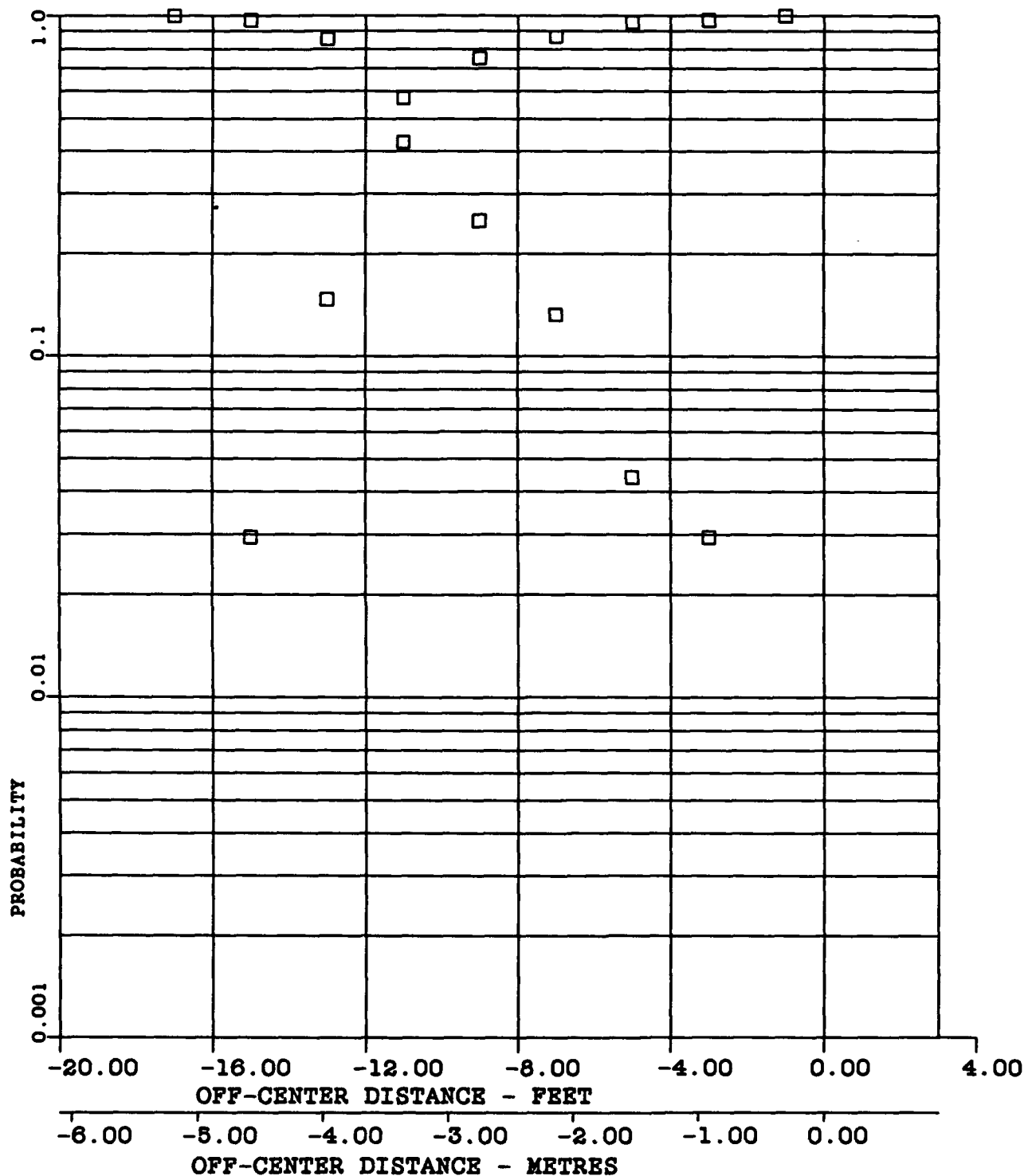


FIGURE F-36 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-54

 $\bar{X}$ -3.27

S-.67

A3--.40

A4-2.17

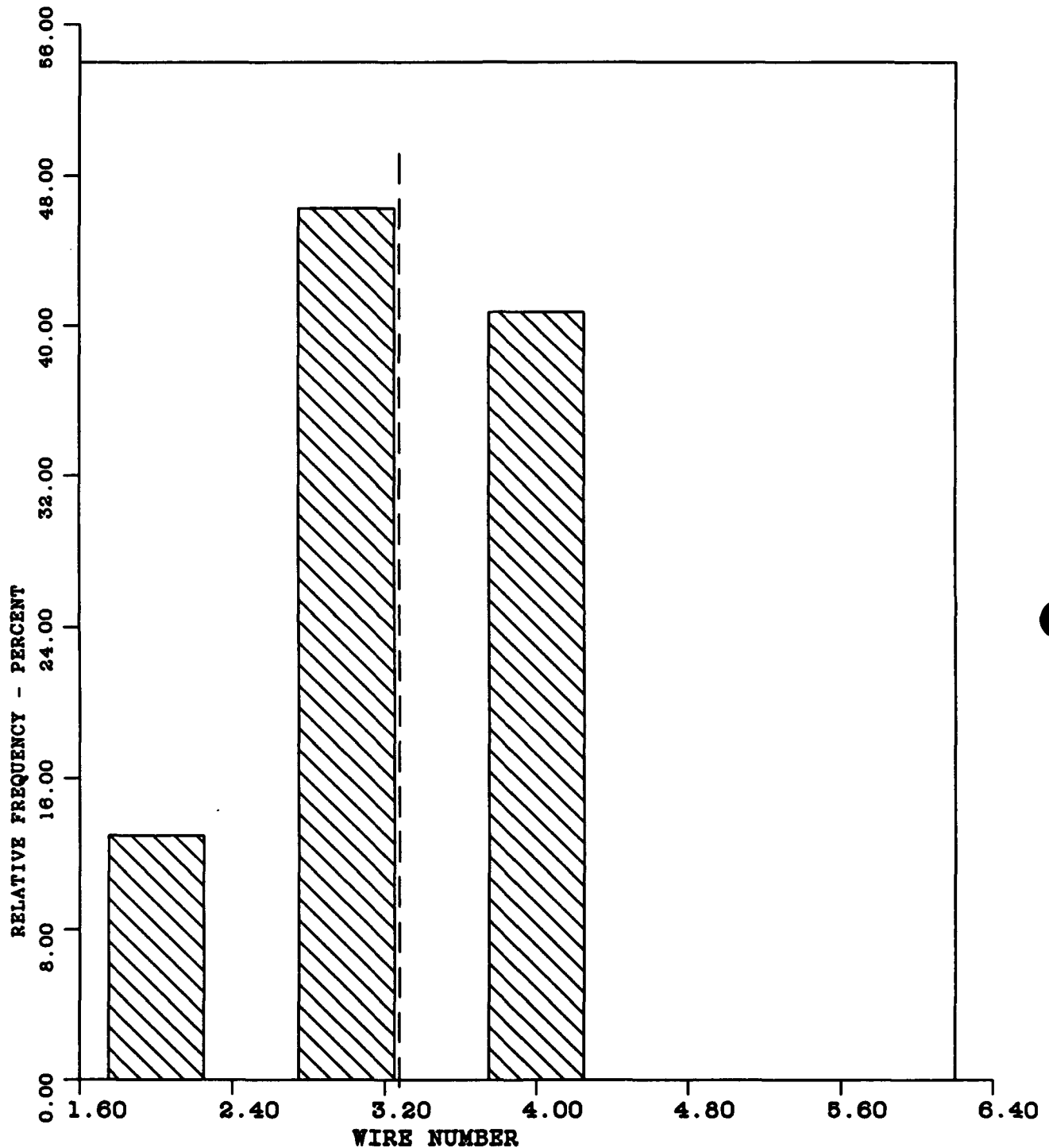


FIGURE F-37 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -3.15 DEGREES (.055 RADIANS)

A3--.44

S-.49 DEGREES (.008 RADIANS)

A4-2.90

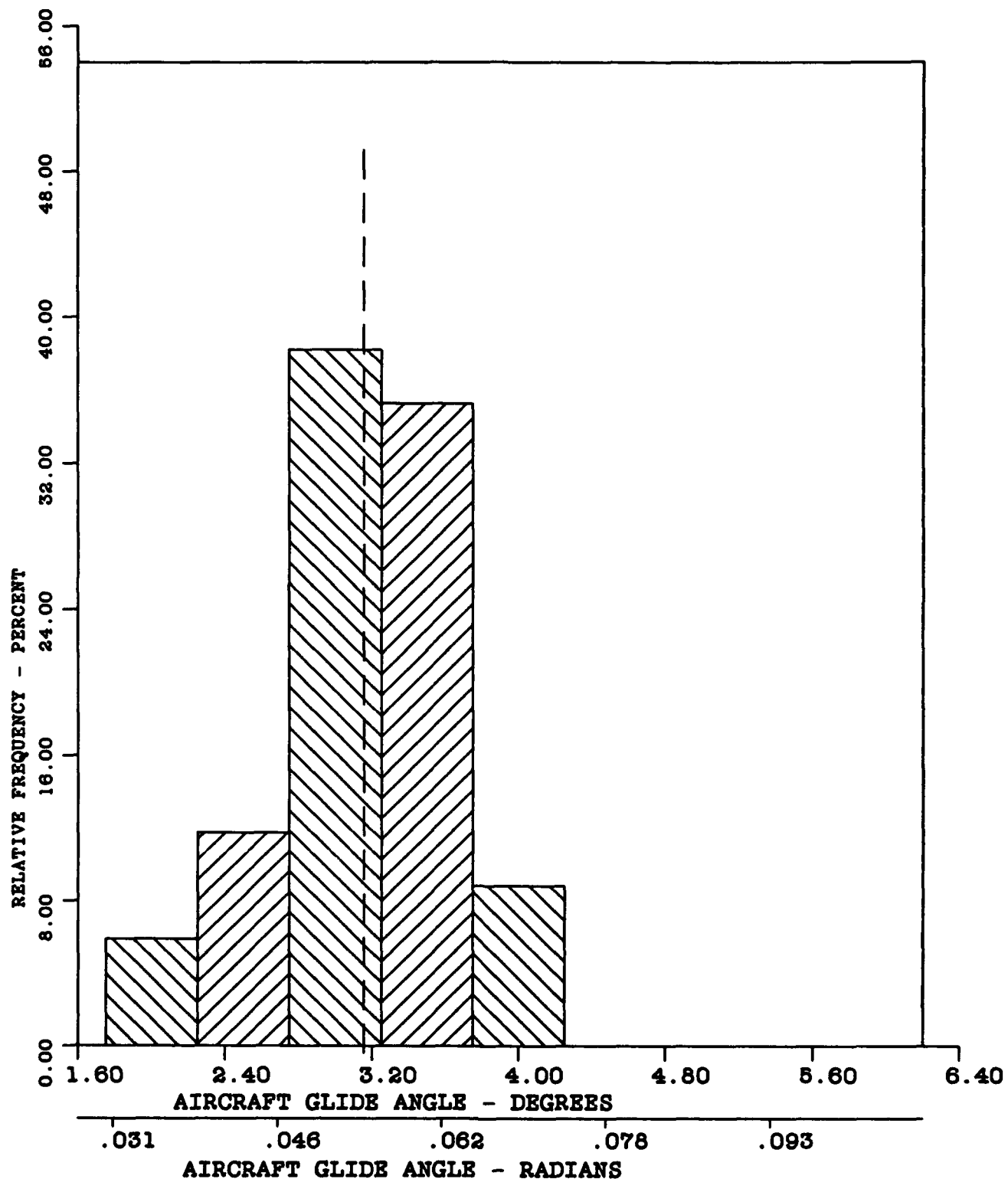


FIGURE F-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -3.29 DEGREES (.057 RADIANS)

A3-.28

S-.44 DEGREES (.007 RADIANS)

A4-3.01

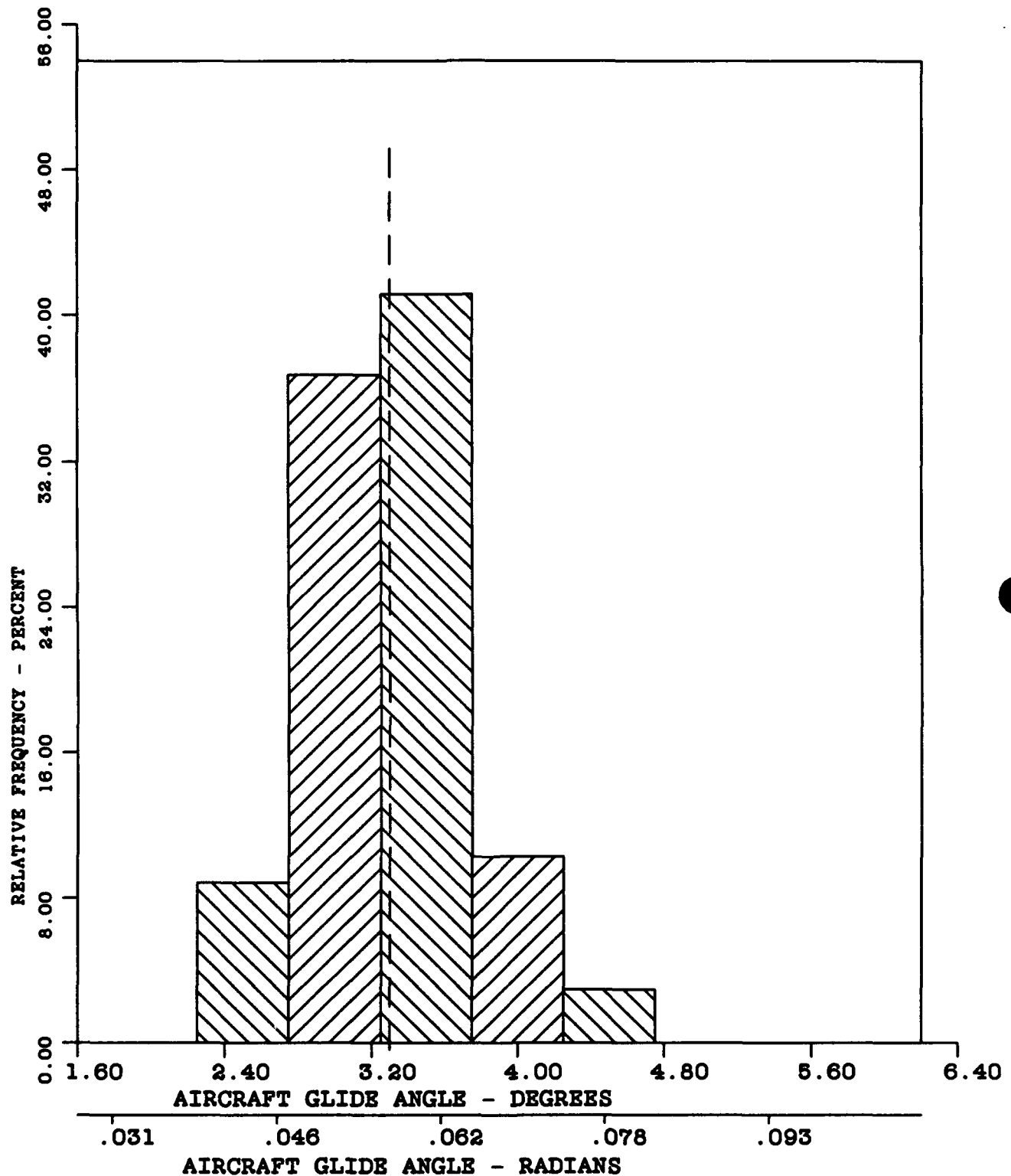


FIGURE F-39 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -11.32 FEET (3.45 METRES)

A3-.84

S-2.55 FEET (.77 METRES)

A4-4.19

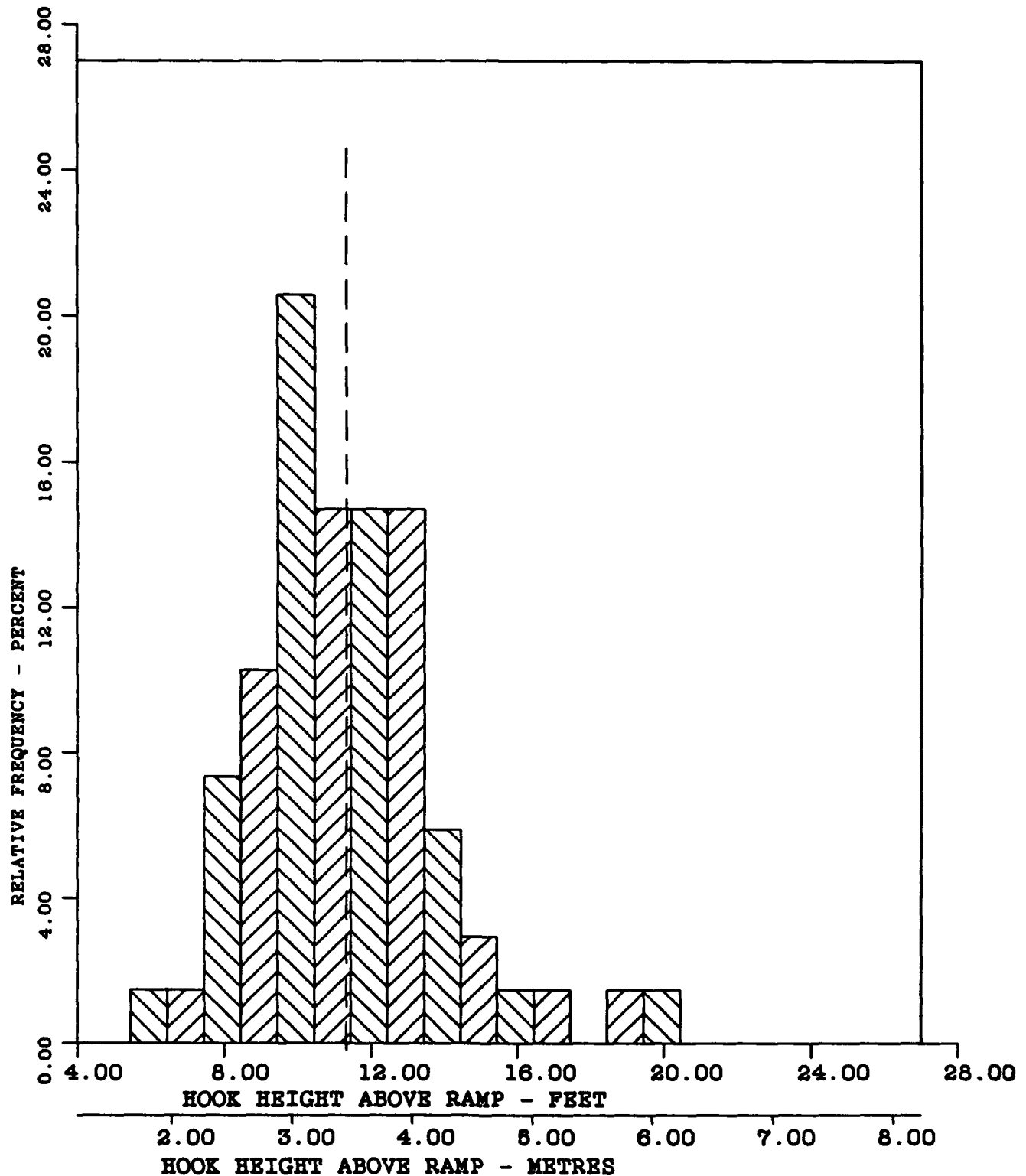


FIGURE F-40 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=68

 $\bar{X}$ =11.32 FEET (3.45 METRES)

A3=.84

S=2.55 FEET (.77 METRES)

A4=4.19

CURVE FITTED - PEARSON TYPE III

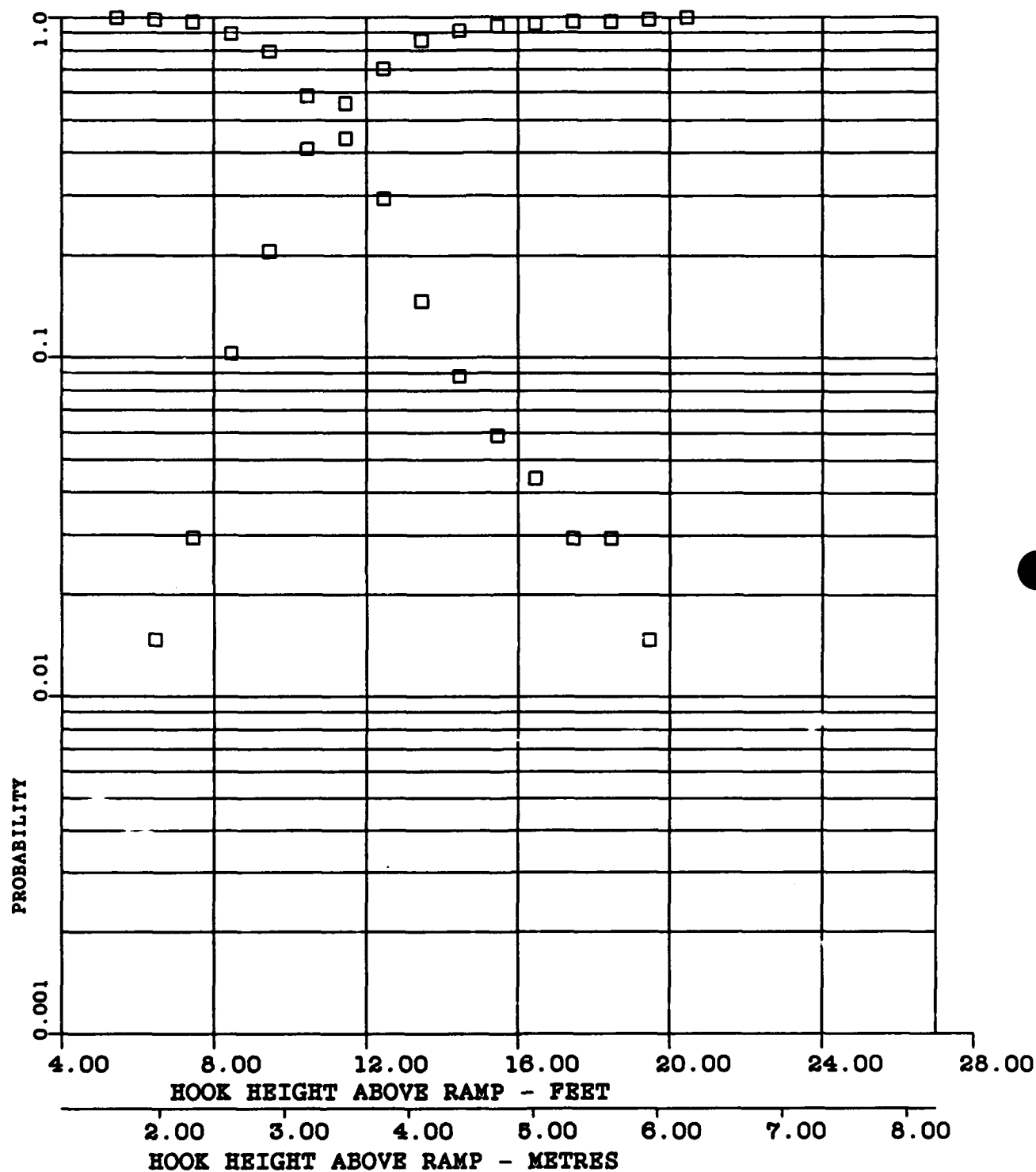


FIGURE F-41 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -102.31 KNOTS (52.63 METRES/SEC)

A3-.01

S-3.91 KNOTS (2.01 METRES/SEC)

A4-2.58

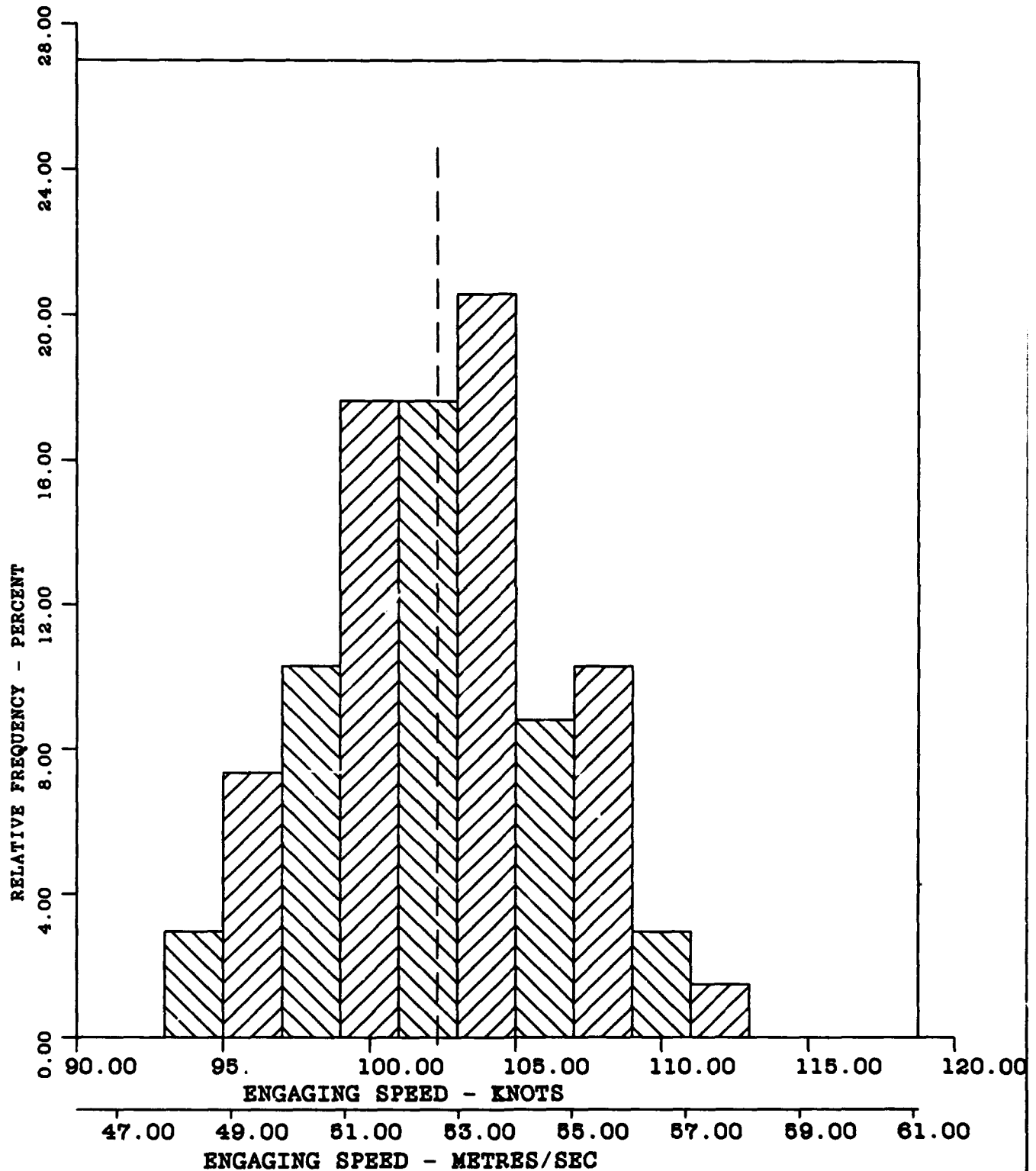


FIGURE F-42 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -102.31 KNOTS (52.63 METRES/SEC)

A3-.01

S-3.91 KNOTS (2.01 METRES/SEC)

A4-2.58

CURVE FITTED - NORMAL

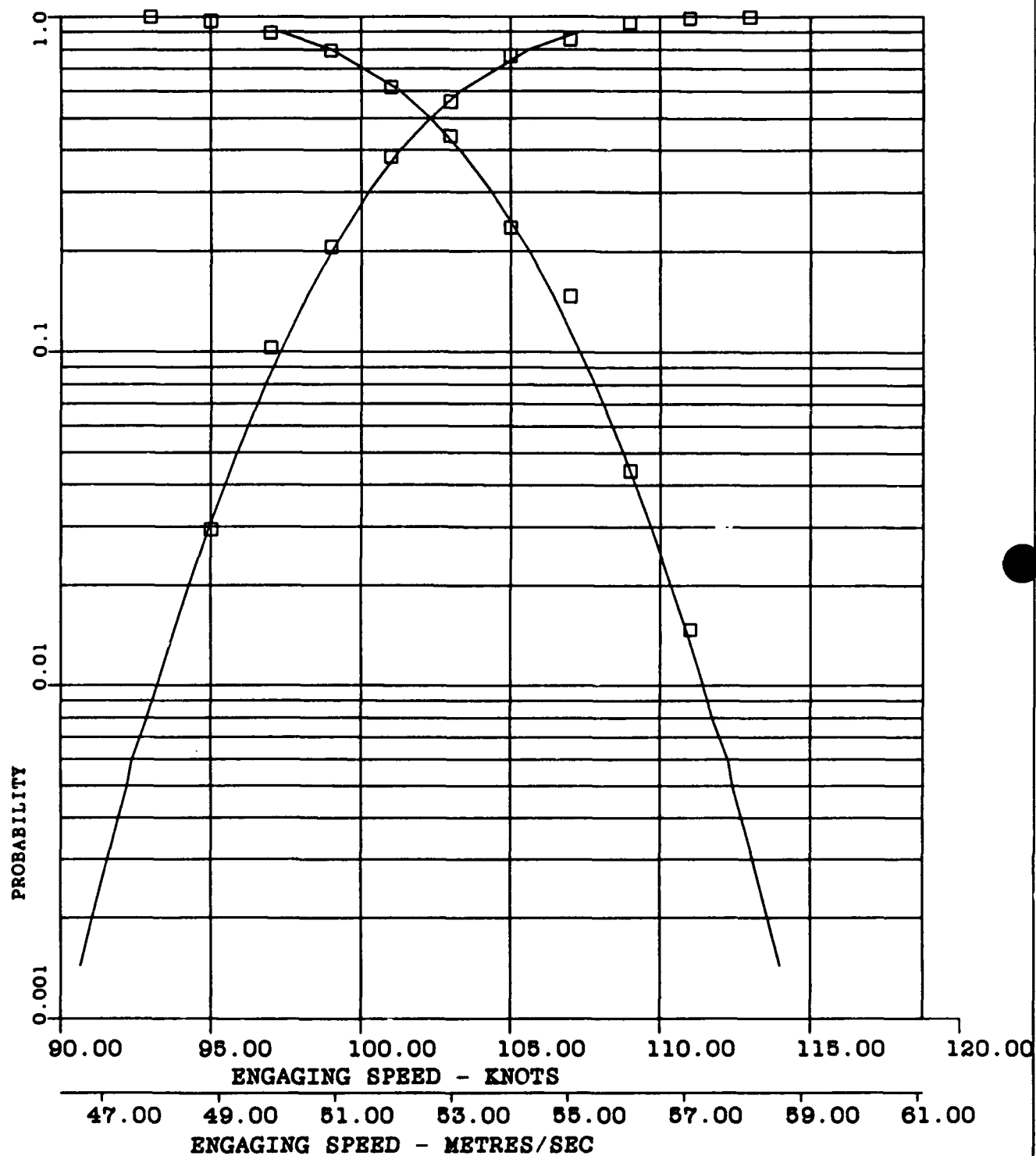


FIGURE F-43 PROBABILITY DISTRIBUTION OF ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -108.52 KNOTS (55.82 METRES/SEC)

A3--.17

S-1.79 KNOTS (.92 METRES/SEC)

A4-2.16

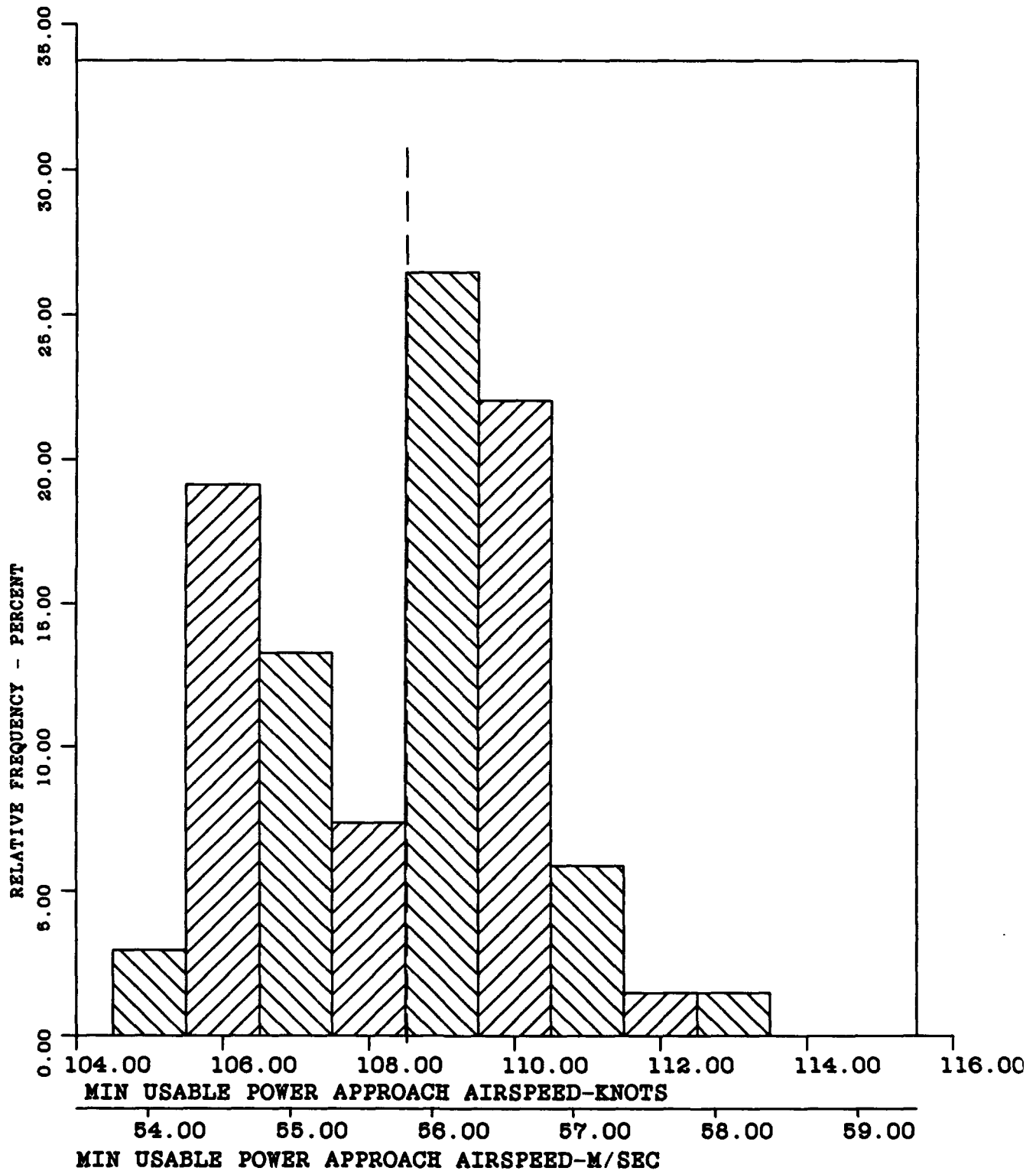


FIGURE F-44 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -1.18

S-.03

A3--.20

A4-2.97

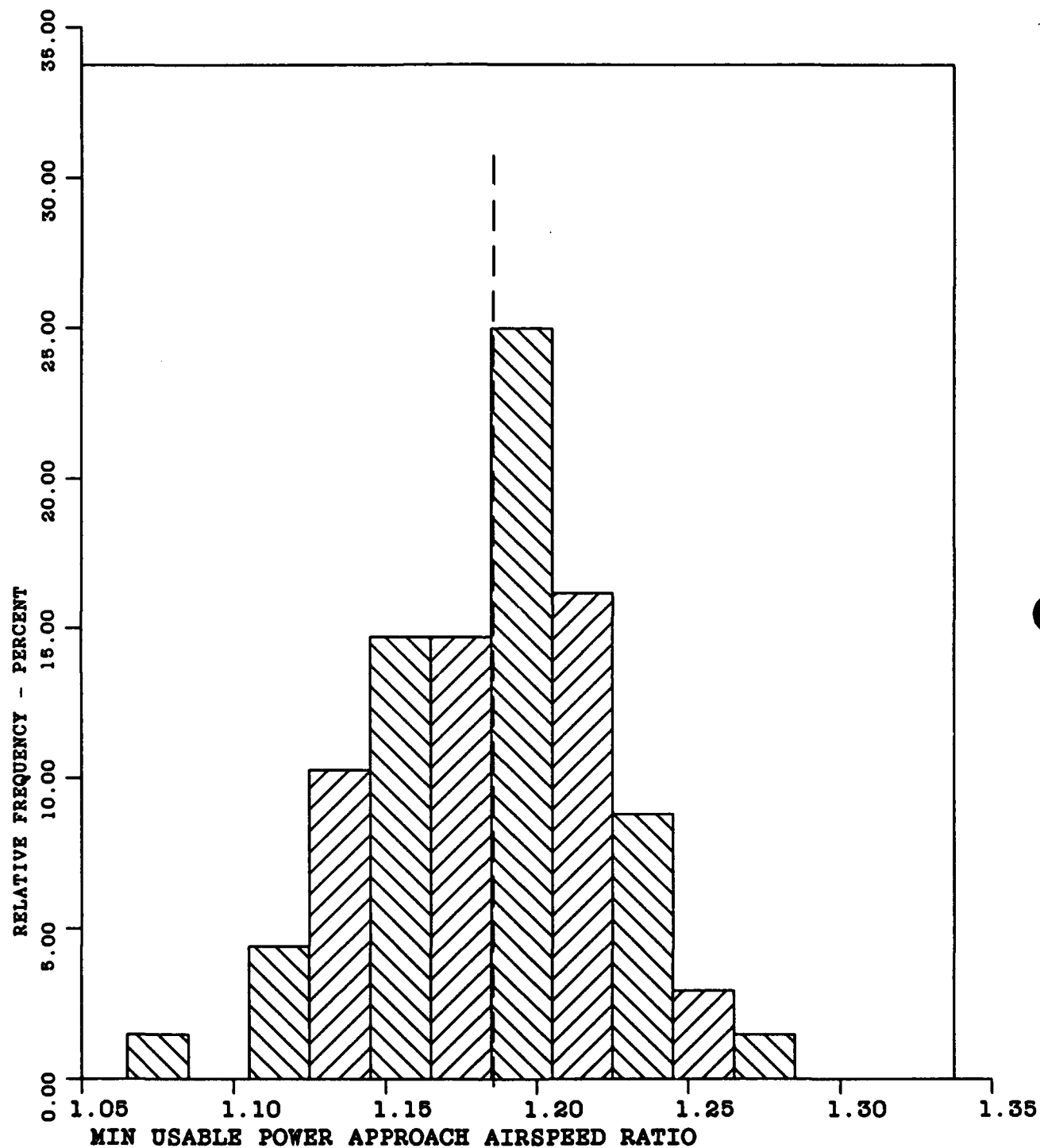


FIGURE F-45 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-61

 $\bar{X}$ -.39 DEGREES (-.006 RADIANS)

A3-.99

S-.63 DEGREES (.011 RADIANS)

A4-8.12

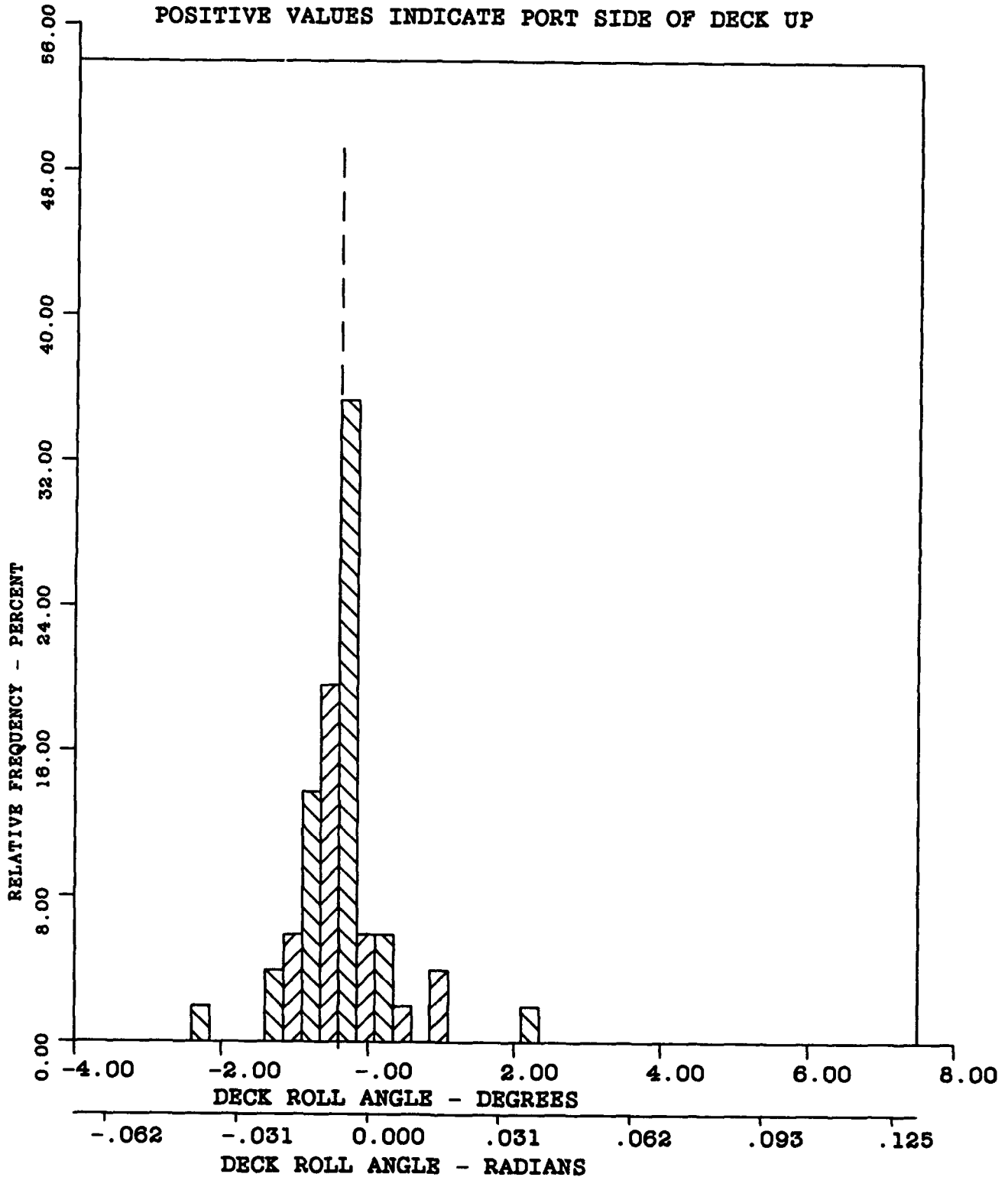


FIGURE F-46 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=51

 $\bar{X}$  = -.39 DEGREES (-.006 RADIANS)

A3 = .99

S = .63 DEGREES (.011 RADIANS)

A4 = 8.12

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

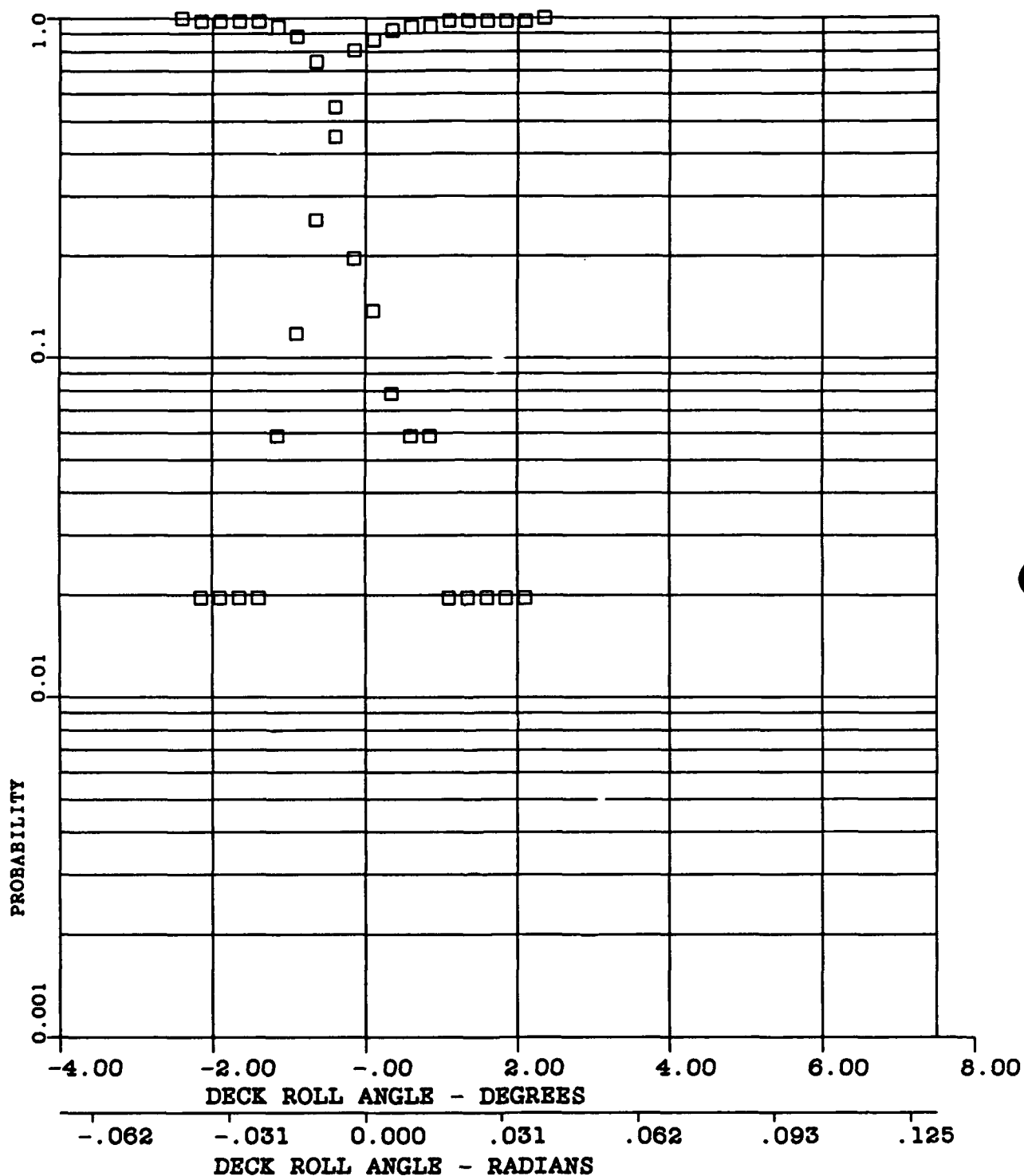


FIGURE F-47 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-51

 $\bar{X}$ -.15 DEGREES (-.002 RADIANS)

A3--.15

S-.21 DEGREES (.003 RADIANS)

A4-3.91

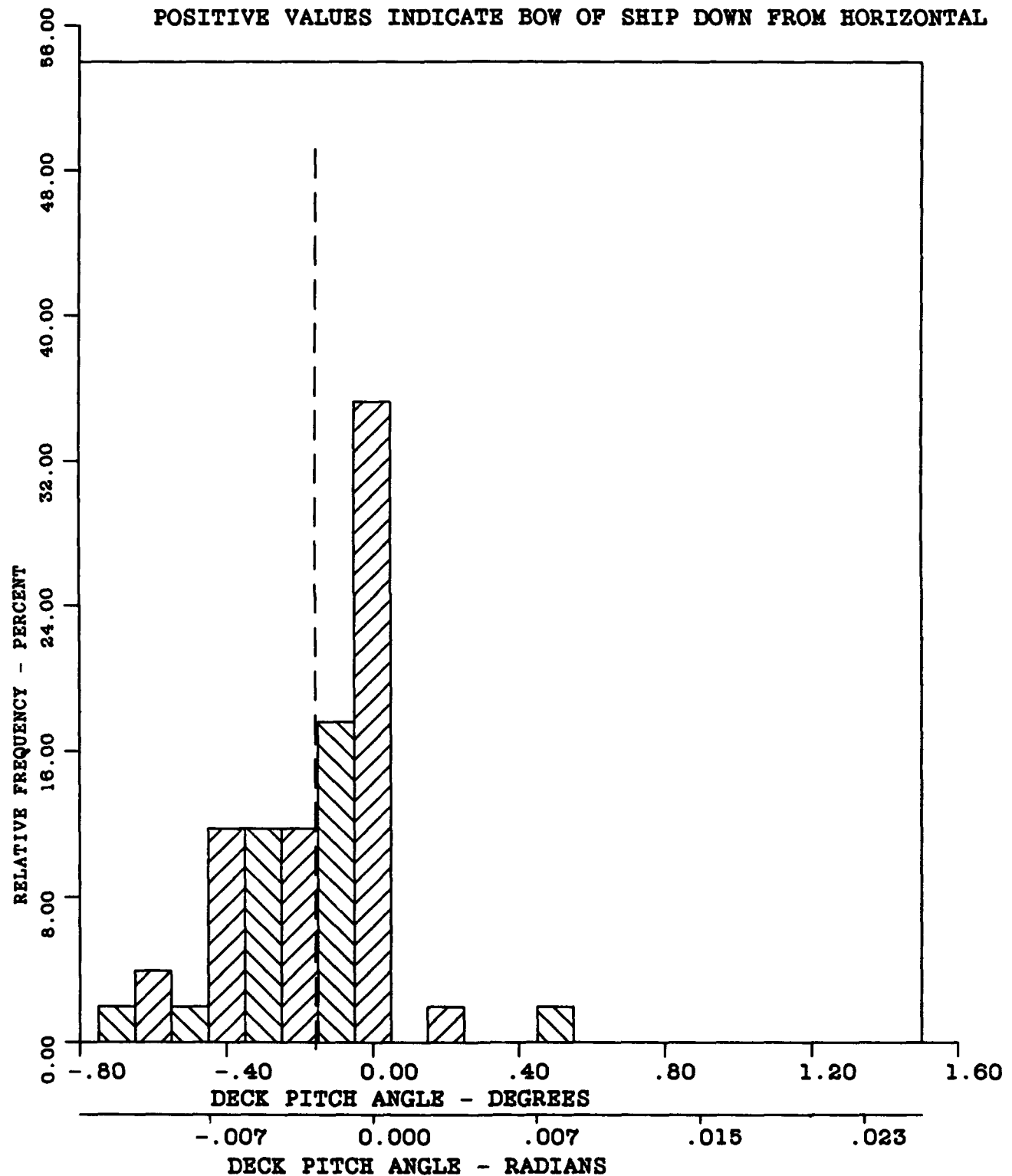


FIGURE F-48 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-51

 $\bar{X}$  = -.15 DEGREES (-.002 RADIANS)

A3 = -.15

S = .21 DEGREES (.003 RADIANS)

A4 = 3.91

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

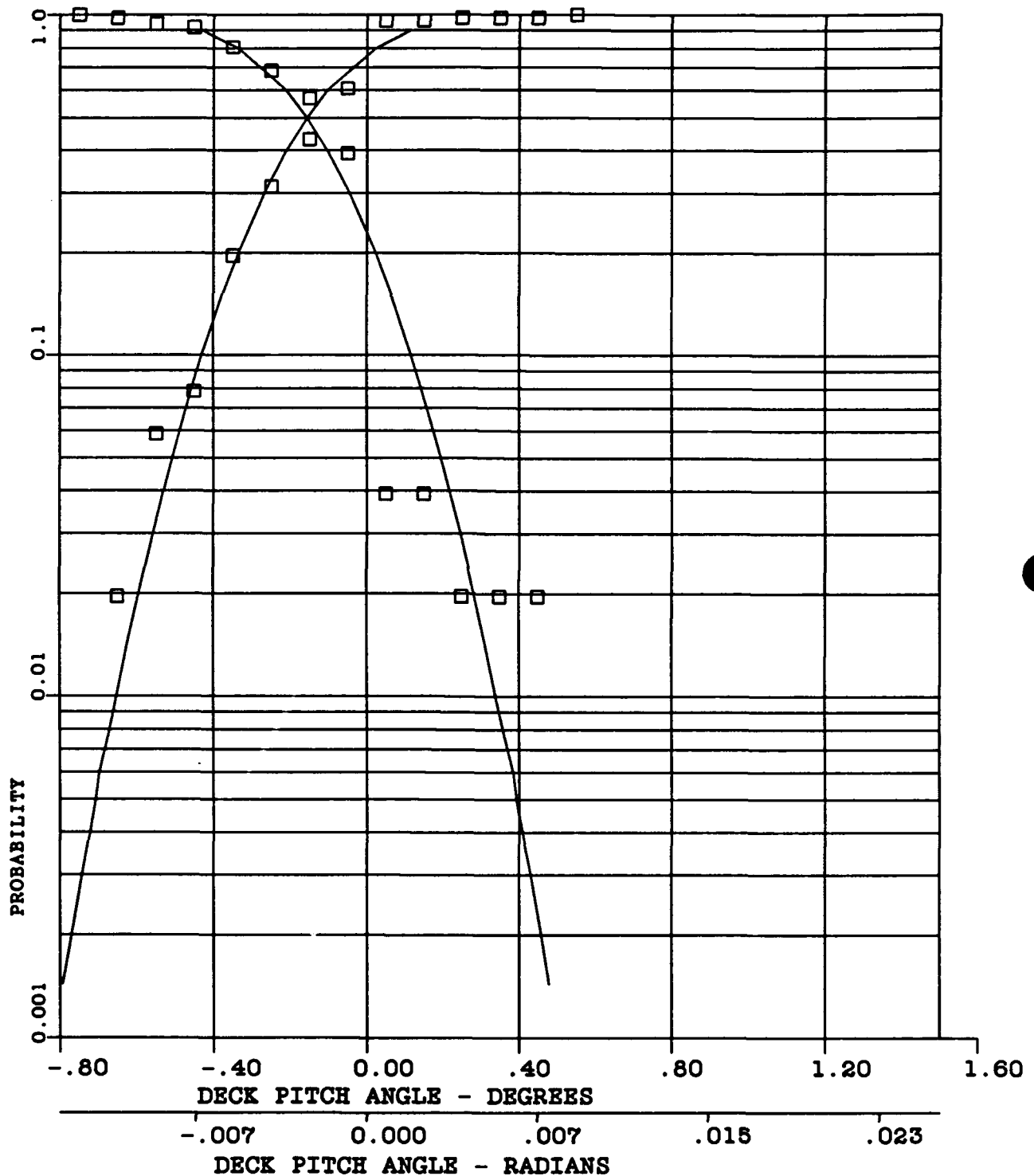


FIGURE F-49 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -32722.16 POUNDS (14842.77 KILOGRAMS)

A3--.14

S-1080.83 POUNDS (490.26 KILOGRAMS)

A4-2.17

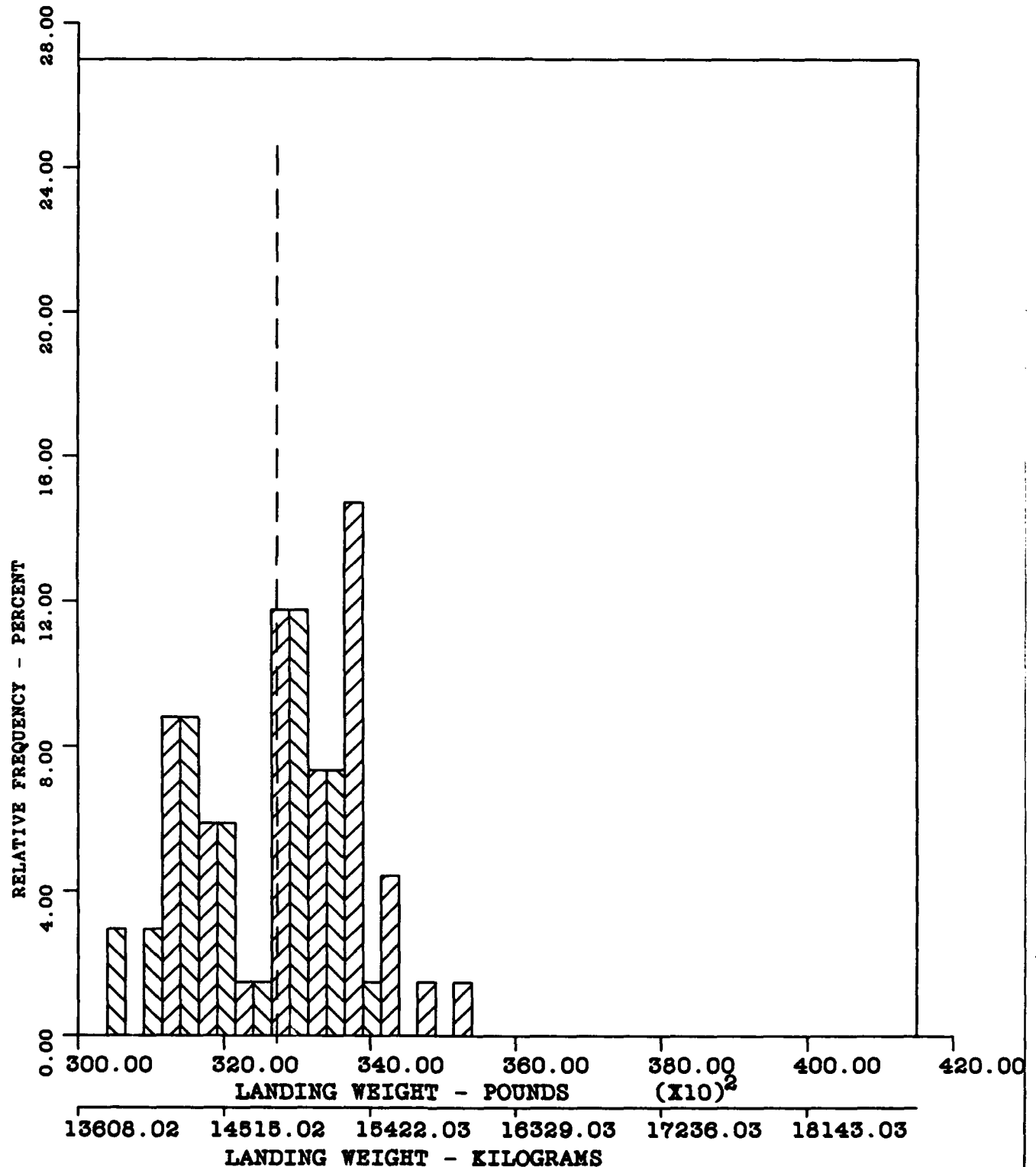


FIGURE F-50 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -.55 DEG/SEC (.009 RAD/SEC)

A3-.01

S-5.07 DEG/SEC (.088 RAD/SEC)

A4-4.53

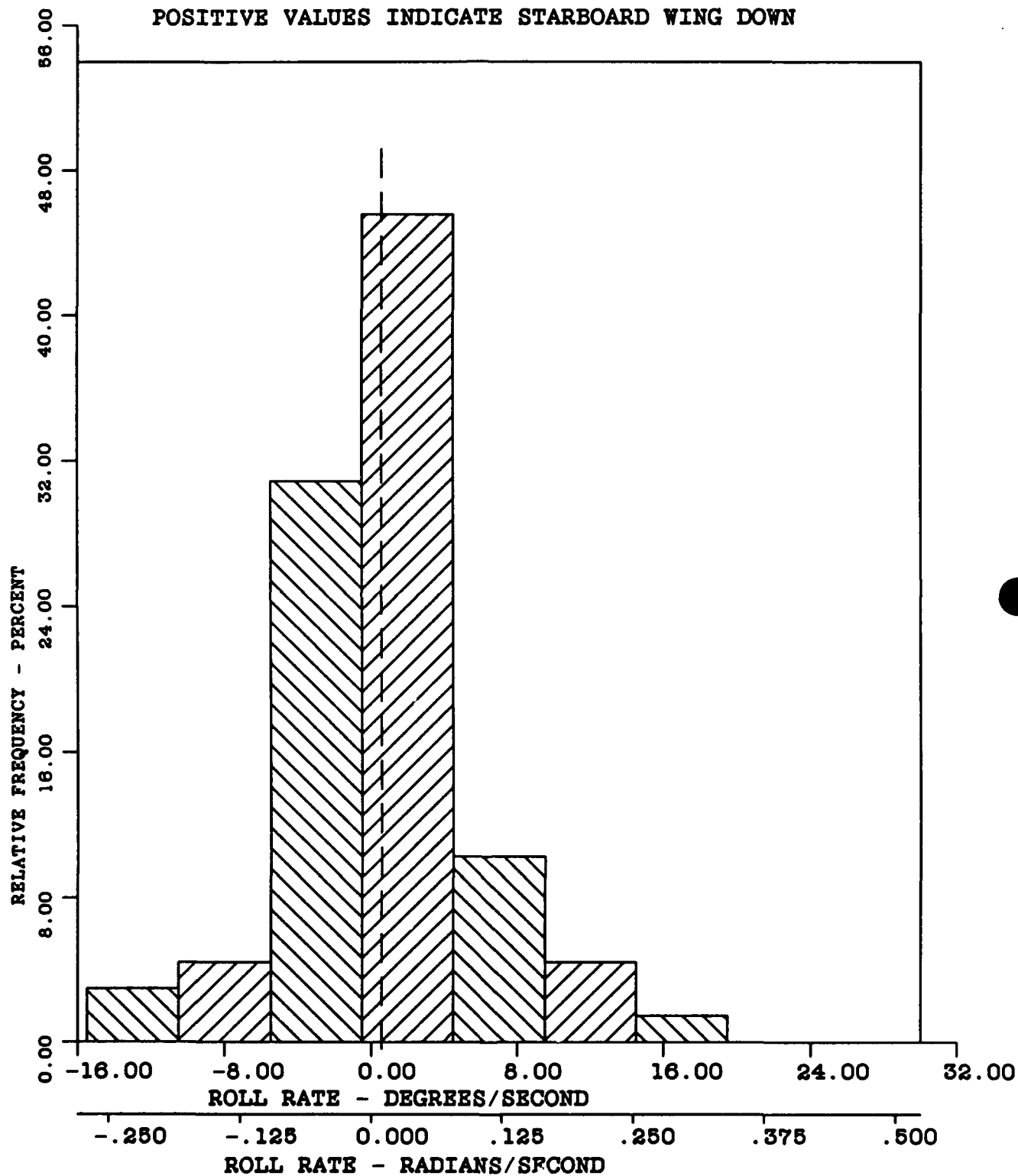


FIGURE F-51 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$  = .65 DEG/SEC (.009 RAD/SEC)

A3 = .01

S = 5.07 DEG/SEC (.088 RAD/SEC)

A4 = 4.53

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

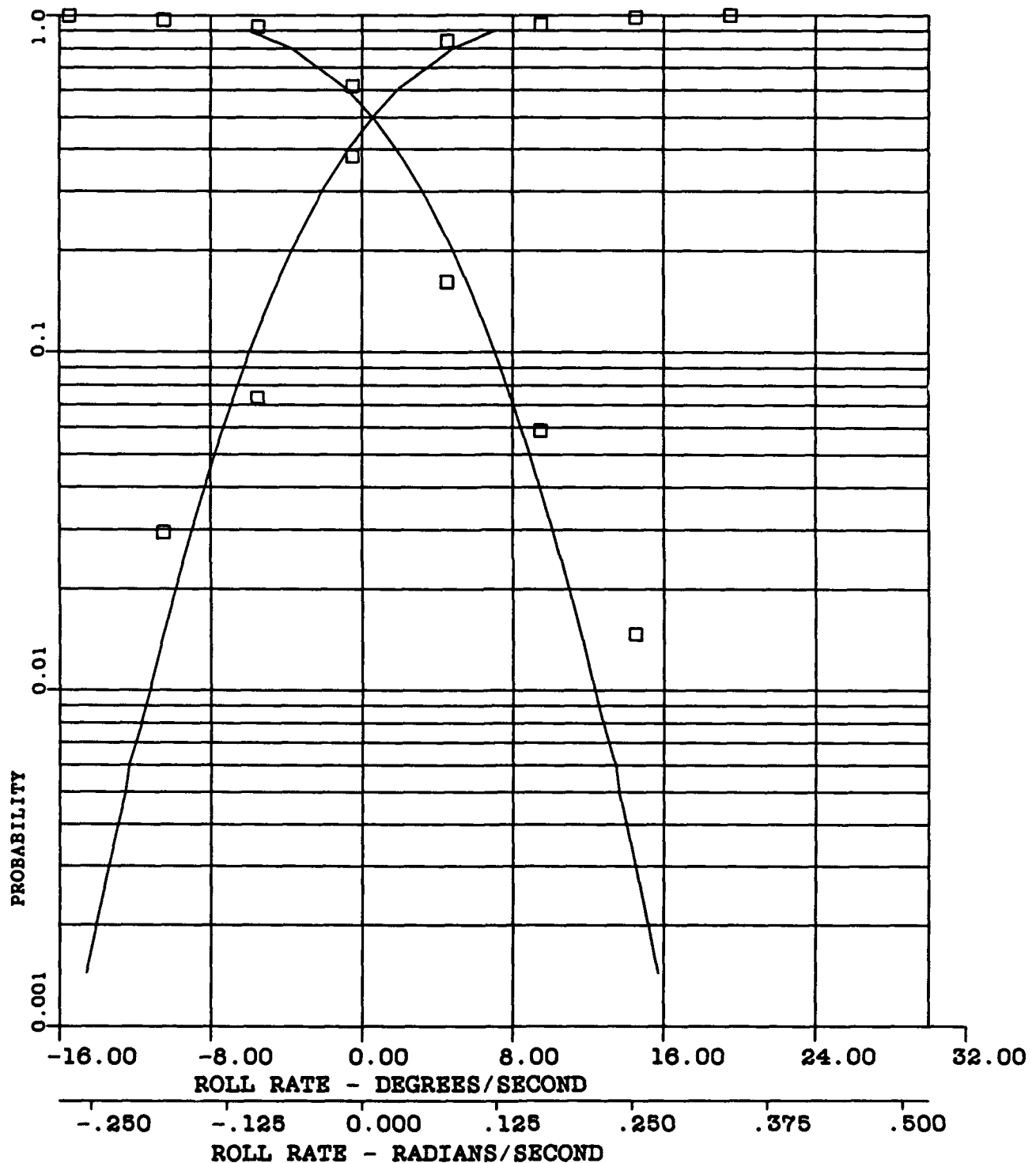


FIGURE F-52 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-68  $\bar{X}$  = -.51 DEG/SEC (.008 RAD/SEC)

A3 = -.20

S = 2.05 DEG/SEC (.035 RAD/SEC)

A4 = 2.96

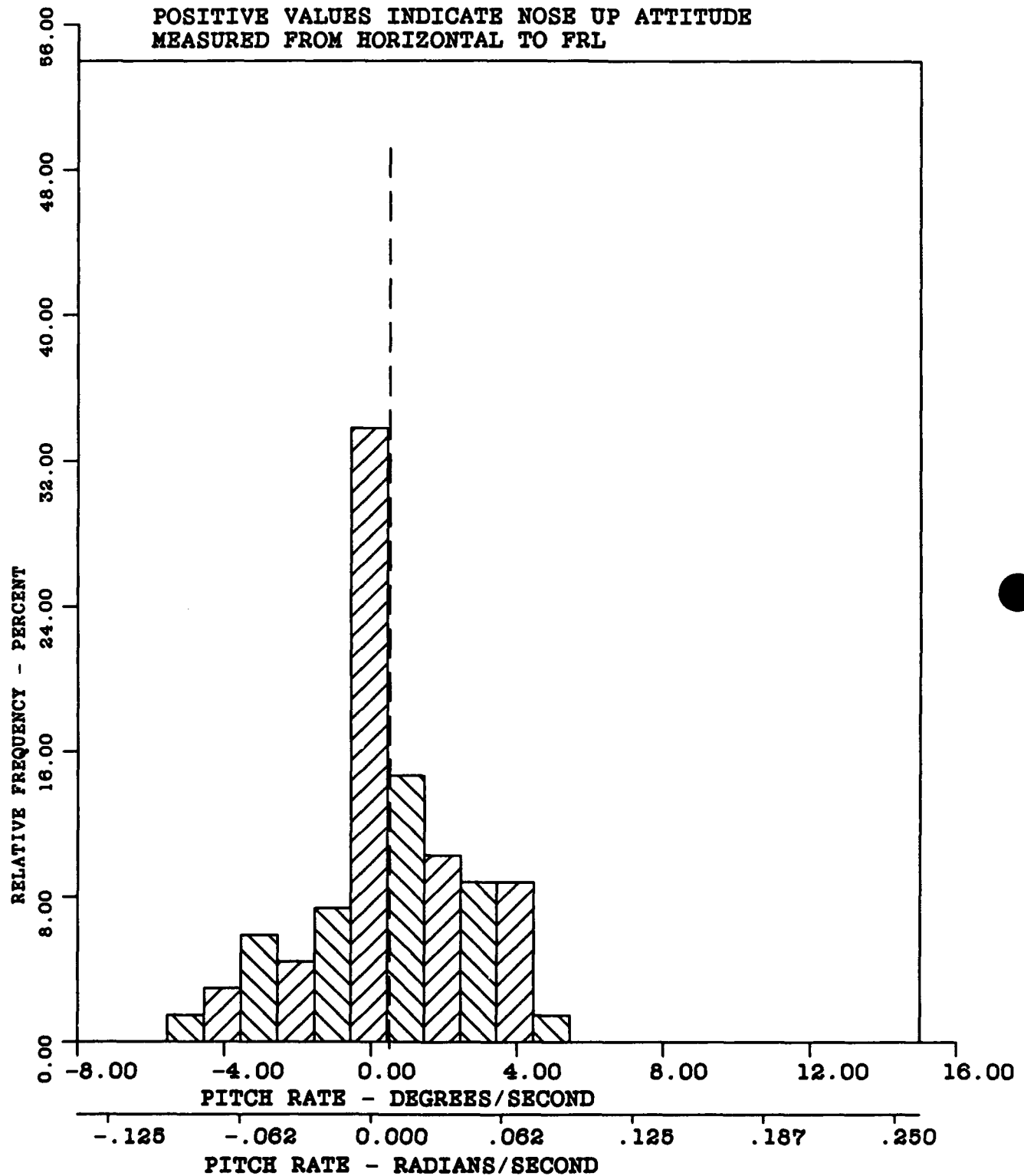


FIGURE F-53 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -.51 DEG/SEC (.008 RAD/SEC)

A3--.20

S-2.05 DEG/SEC (.035 RAD/SEC)

A4-2.96

CURVE FITTED - NORMAL

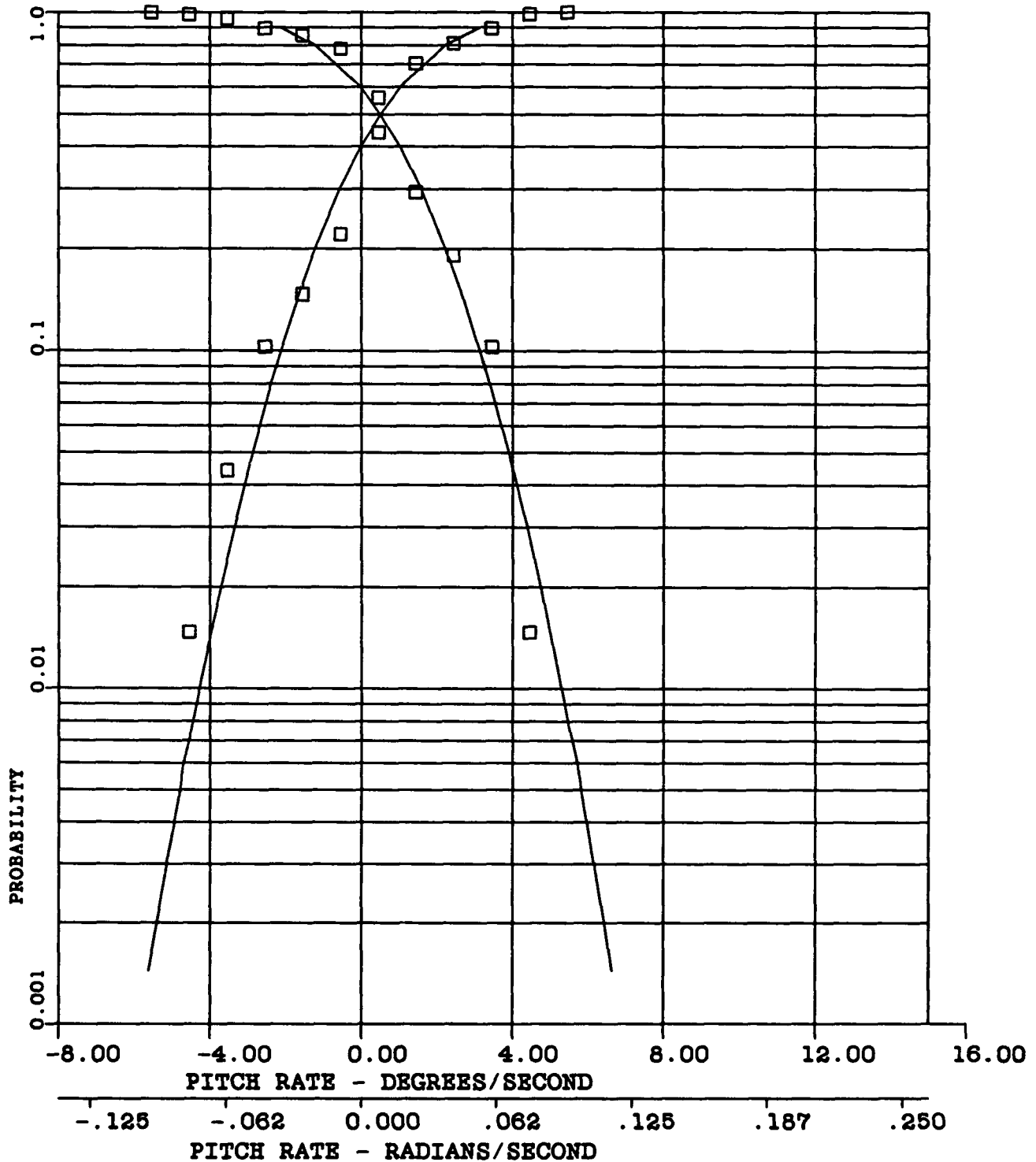
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE F-54 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ =-3.21 DEGREES (-.056 RADIANS)

A3=1.07

S=.89 DEGREES (.015 RADIANS)

A4=5.55

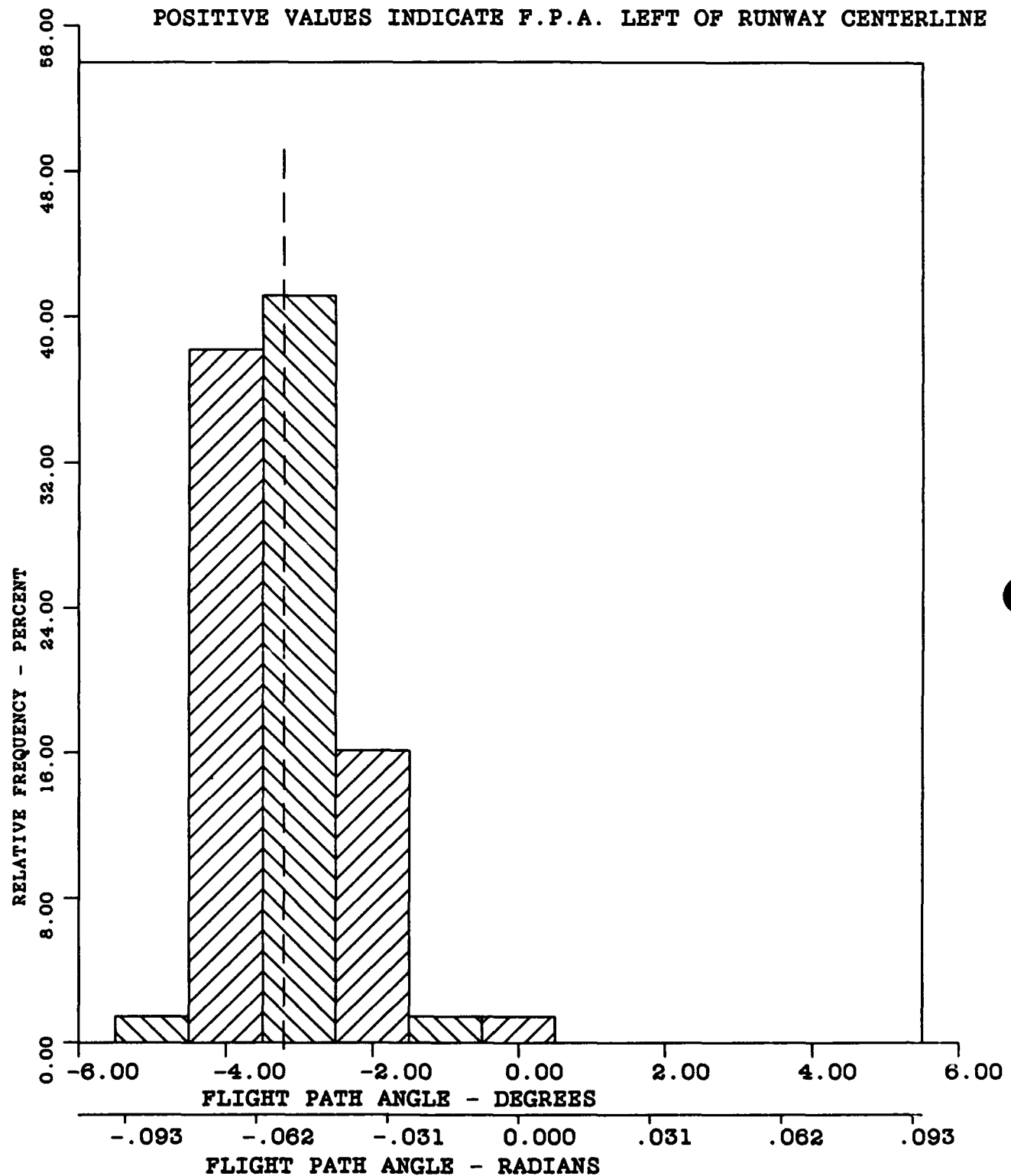


FIGURE F-55 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -3.21 DEGREES (-.056 RADIANS)

A3-1.07

S-.89 DEGREES (.015 RADIANS)

A4-5.55

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

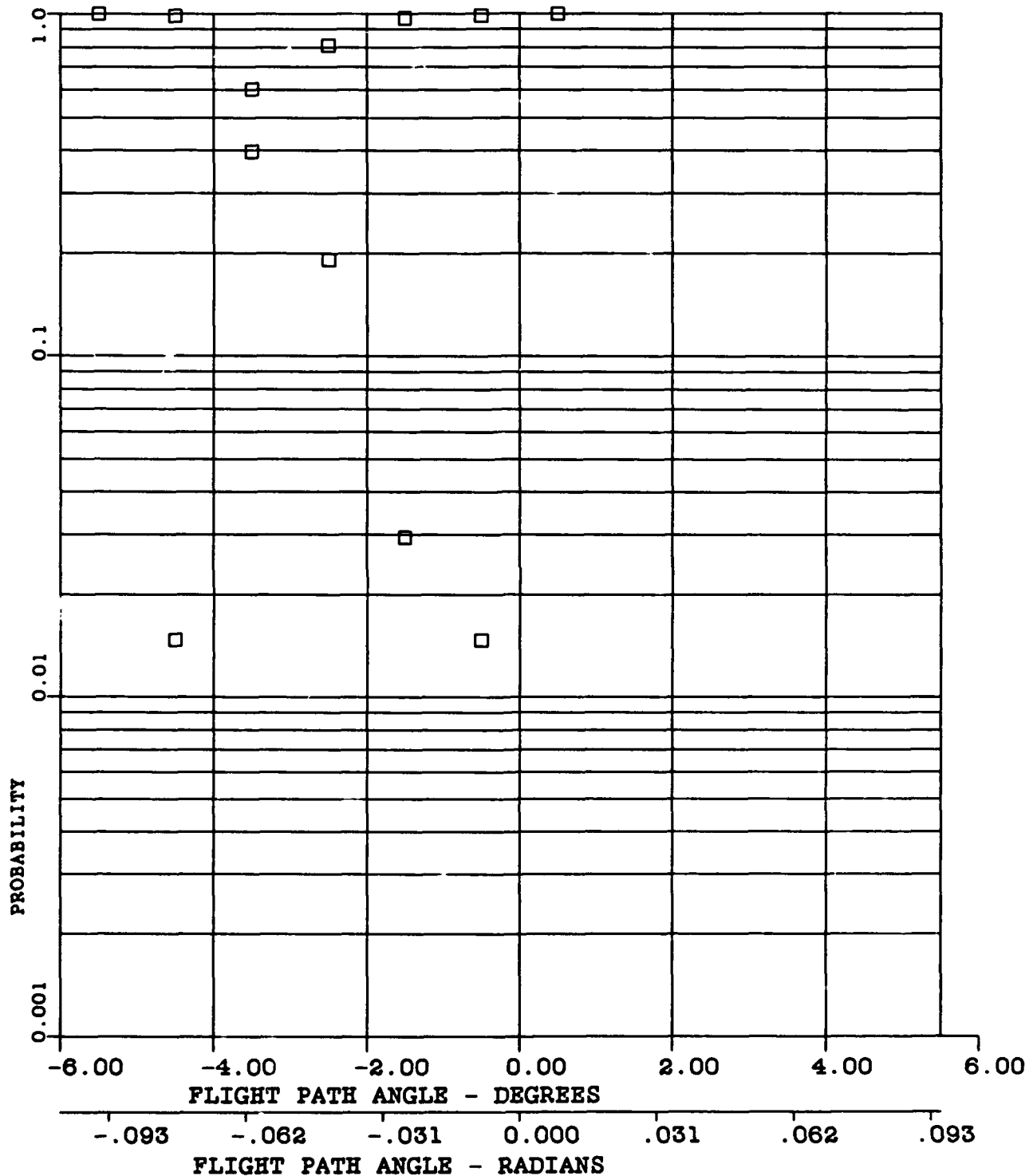


FIGURE F-56 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -.56 DEGREES (.009 RADIANS)

A3-.07

S-3.52 DEGREES (.061 RADIANS)

A4-1.76

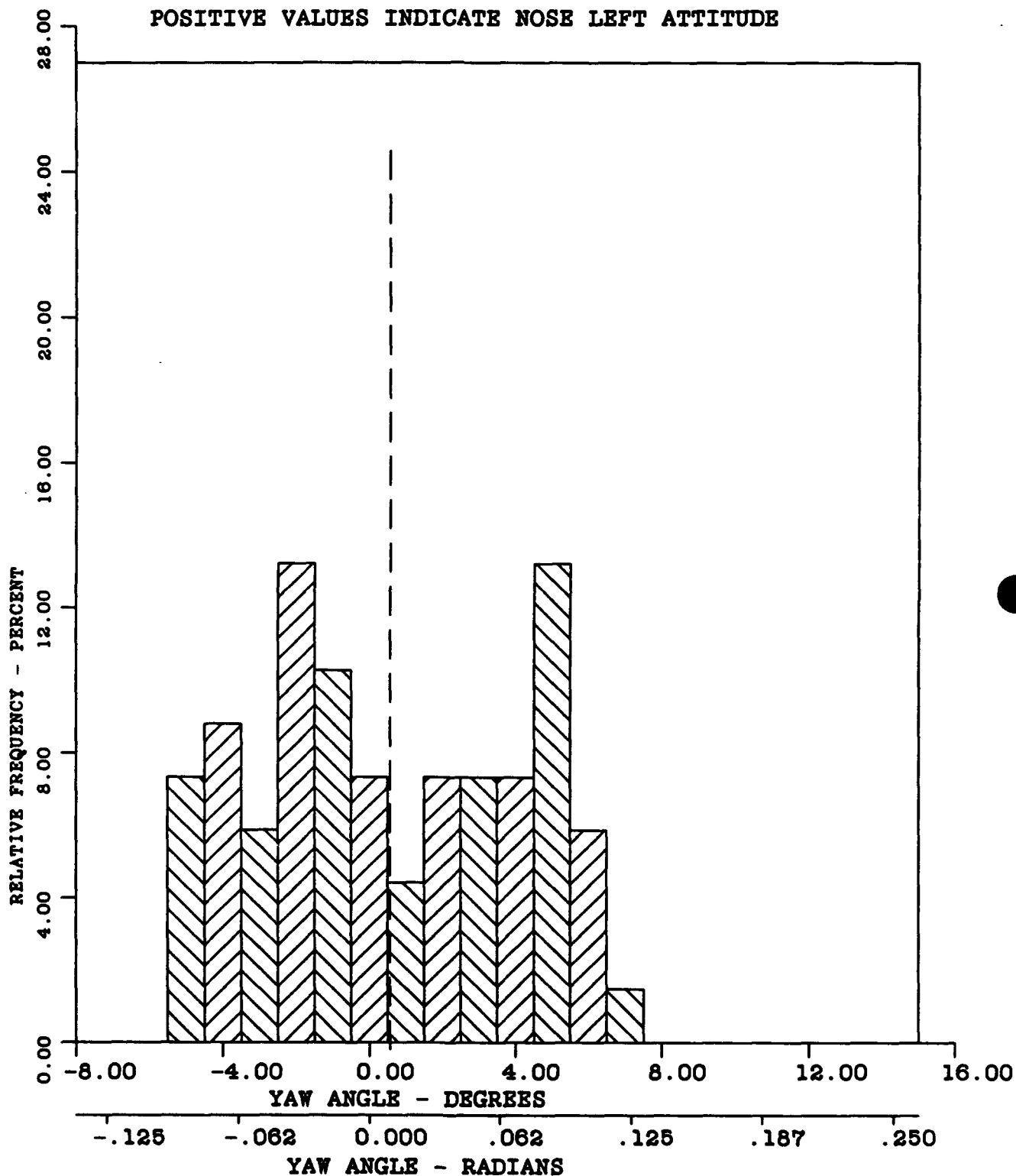


FIGURE F-57 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-68

 $\bar{X}$ -.56 DEGREES (.009 RADIANS)

A3-.07

S-3.52 DEGREES (.061 RADIANS)

A4-1.76

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

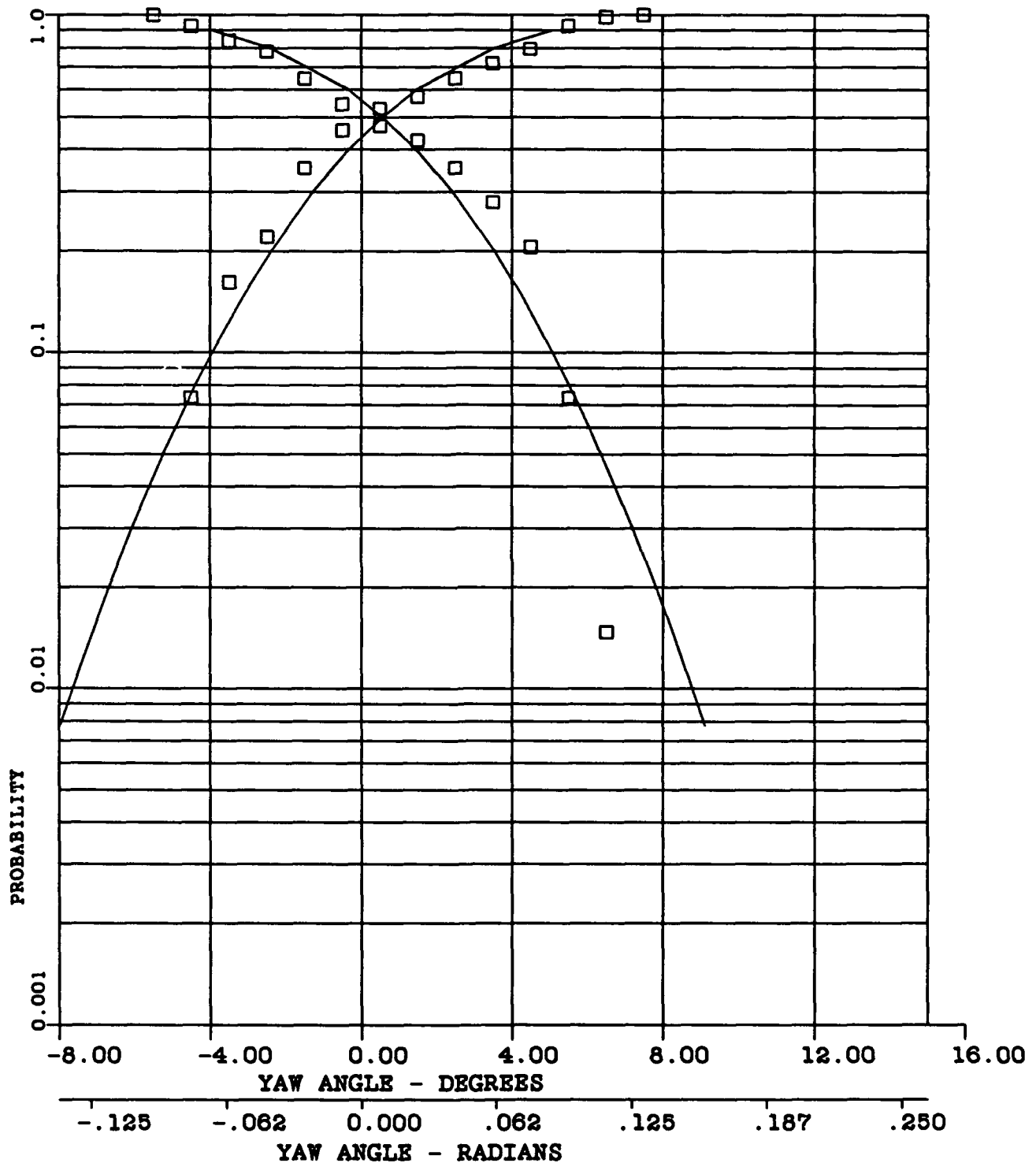


FIGURE F-58 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX G**

**A-6E AIRCRAFT**

**NIGHT CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

Appendix G:

Frequency and Probability Distributions,  
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41. Model A-6E Aircraft, Night Landings, Frequency Distribution of Aircraft Landing Weight
42. Model A-6E Aircraft, Night Landings, Frequency Distribution of Aircraft Roll Rate
43. Model A-6E Aircraft, Night Landings, Probability Distribution of Aircraft Roll Rate

- 44. Model A-6E Aircraft, Night Landings, Frequency Distribution of Aircraft Pitch Rate
- 45. Model A-6E Aircraft, Night Landings, Probability Distribution of Aircraft Pitch Rate
- 46. Model A-6E Aircraft, Night Landings, Frequency Distribution of Aircraft Flight Path Angle at Touchdown
- 47. Model A-6E Aircraft, Night Landings, Probability Distribution of Aircraft Flight Path Angle at Touchdown
- 48. Model A-6E Aircraft, Night Landings, Frequency Distribution of Aircraft Yaw Angle at Touchdown
- 49. Model A-6E Aircraft, Night Landings, Probability Distribution of Aircraft Yaw Angle at Touchdown

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -26.07 KNOTS (13.41 METRES/SEC)

A3-1.45

S-2.74 KNOTS (1.41 METRES/SEC)

A4-3.52

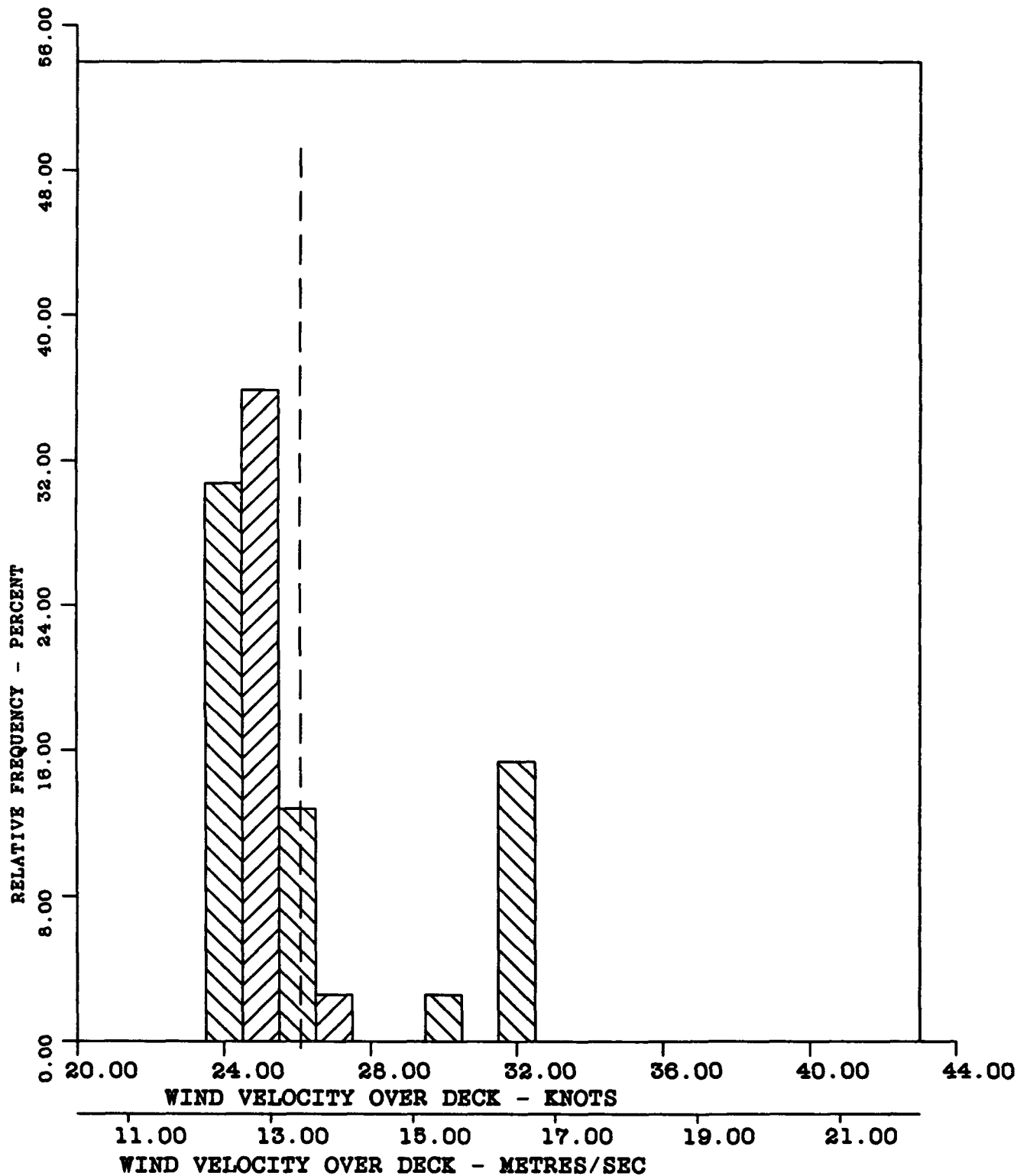


FIGURE G-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -26.07 KNOTS (13.41 METRES/SEC)

A3-1.45

S-2.74 KNOTS (1.41 METRES/SEC)

A4-3.52

CURVE FITTED - PEARSON TYPE III

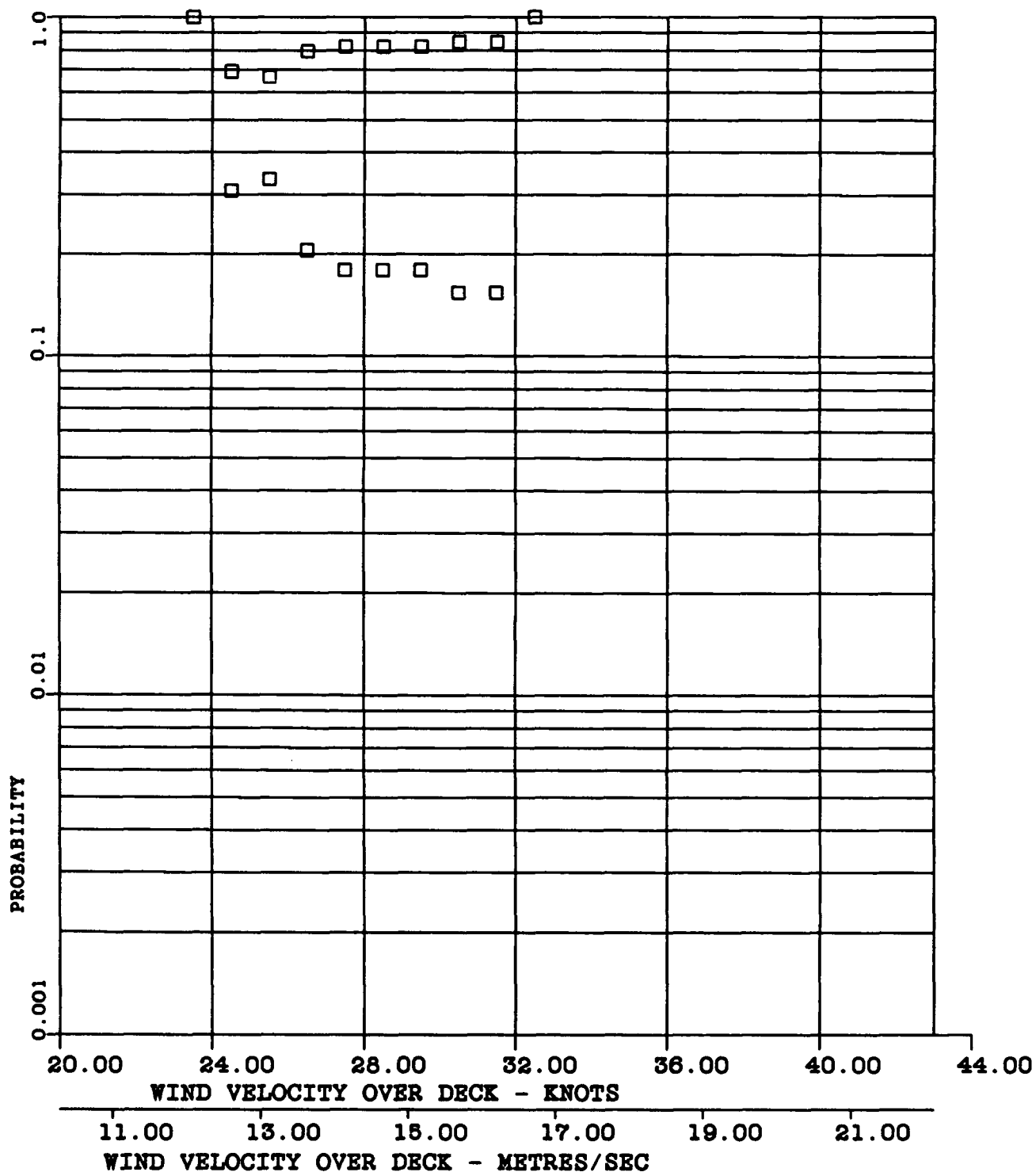


FIGURE G-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL A-6E AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -126.72 KNOTS (65.18 METRES/SEC)

S-3.96 KNOTS (2.03 METRES/SEC)

A3-.23

A4-2.64

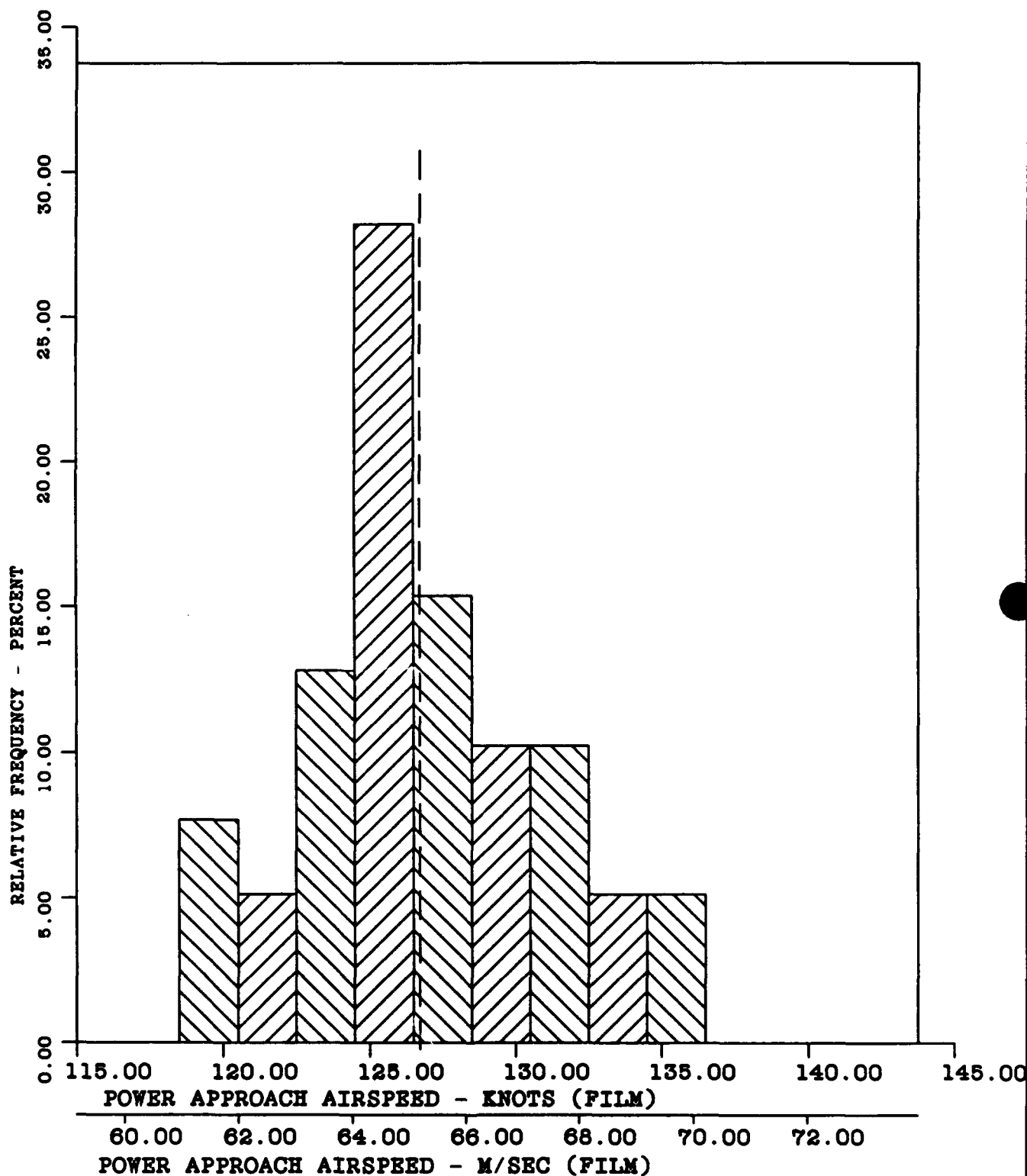


FIGURE G-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -126.72 KNOTS (65.18 METRES/SEC)

A3-.23

S-3.96 KNOTS (2.03 METRES/SEC)

A4-2.64

CURVE FITTED - NORMAL

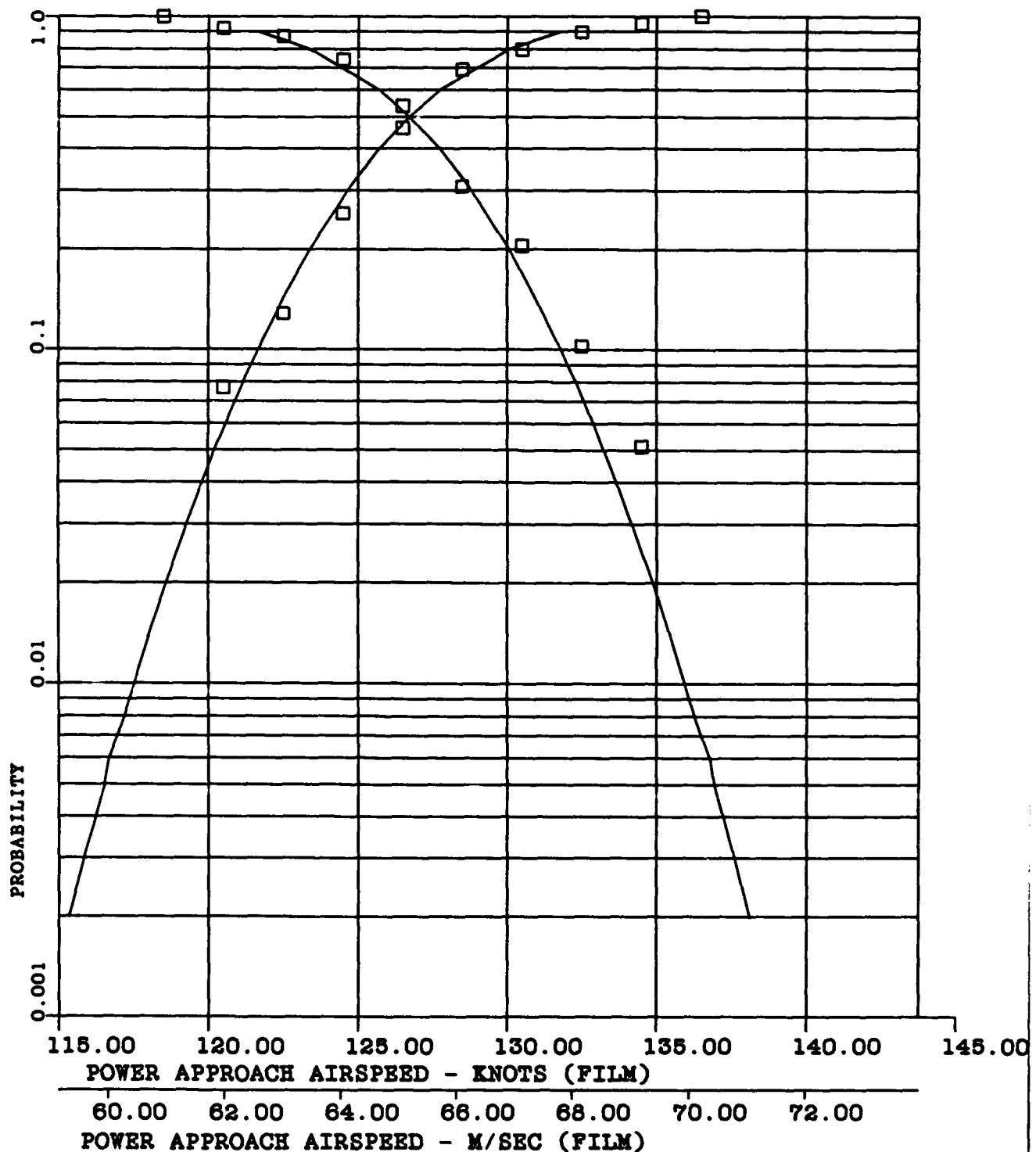


FIGURE G-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-68)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -9.28 FEET/SEC (2.83 METRES/SEC)

A3--.03

S-2.38 FEET/SEC (.72 METRES/SEC)

A4-2.81

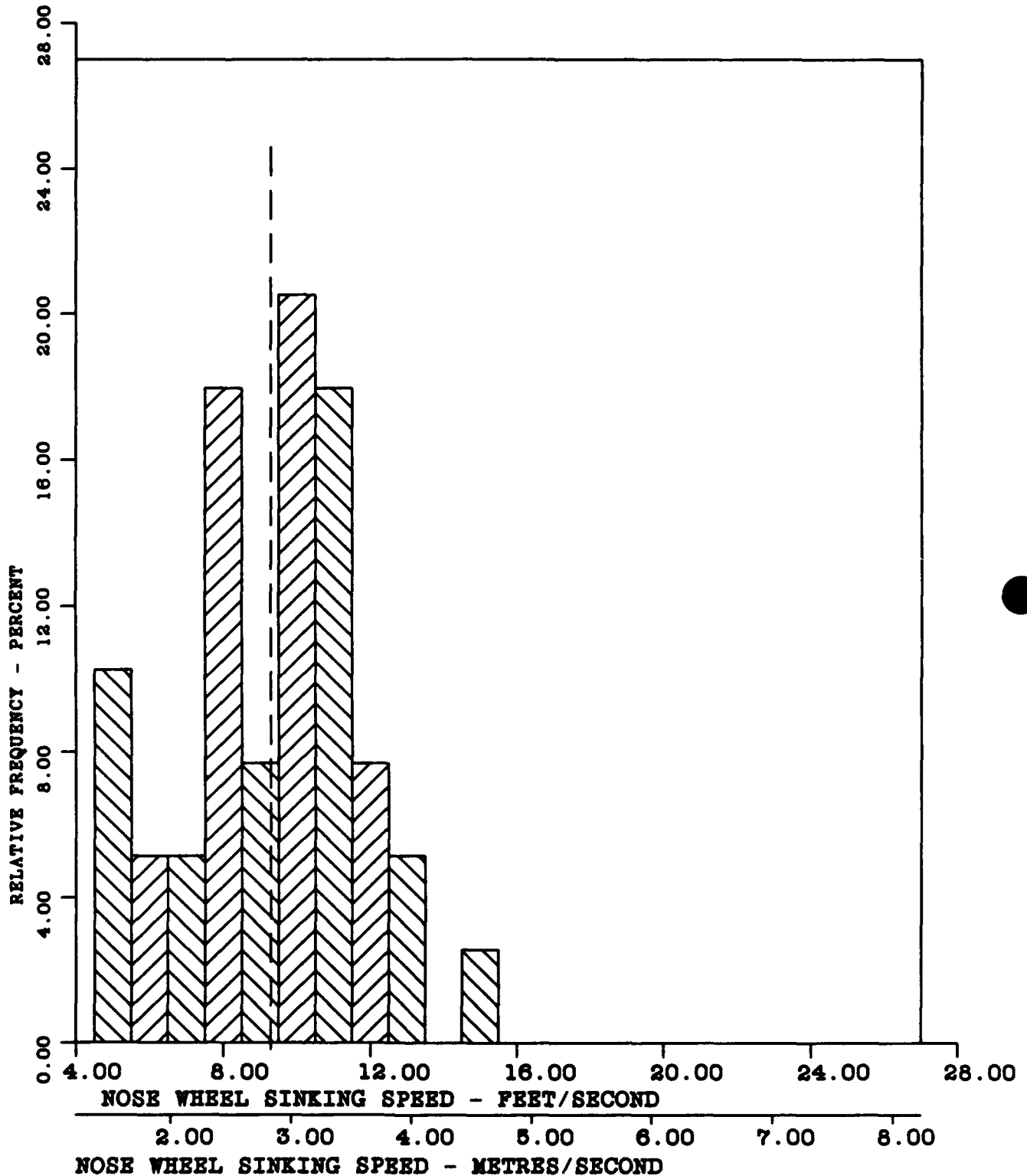


FIGURE G-5 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -9.28 FEET/SEC (2.83 METRES/SEC)

A3--.03

S-2.38 FEET/SEC (.72 METRES/SEC)

A4-2.81

CURVE FITTED - NORMAL

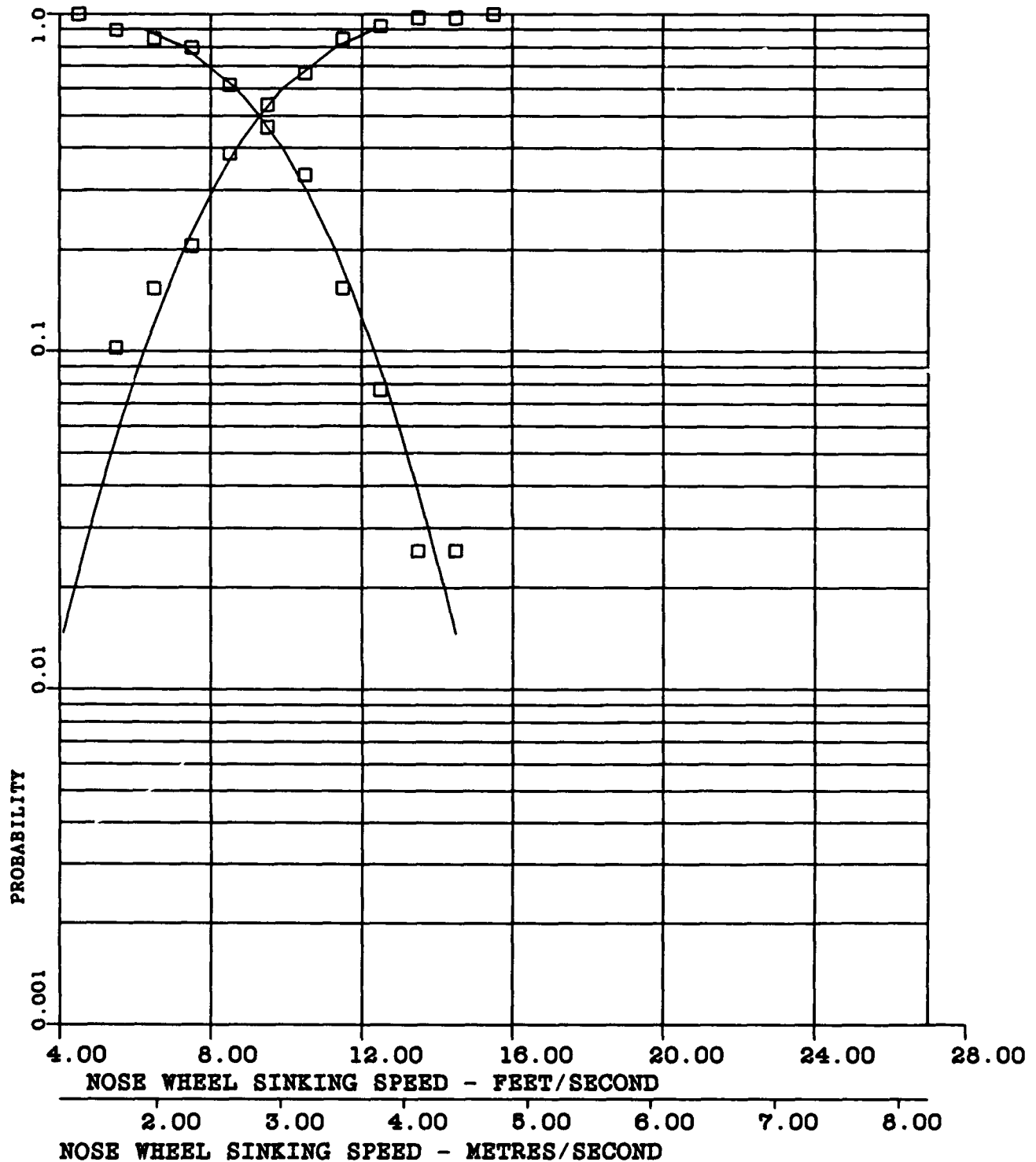


FIGURE G-6 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -10.93 FEET/SEC (3.33 METRES/SEC)

A3--.08

S-2.05 FEET/SEC (.62 METRES/SEC)

A4-2.82

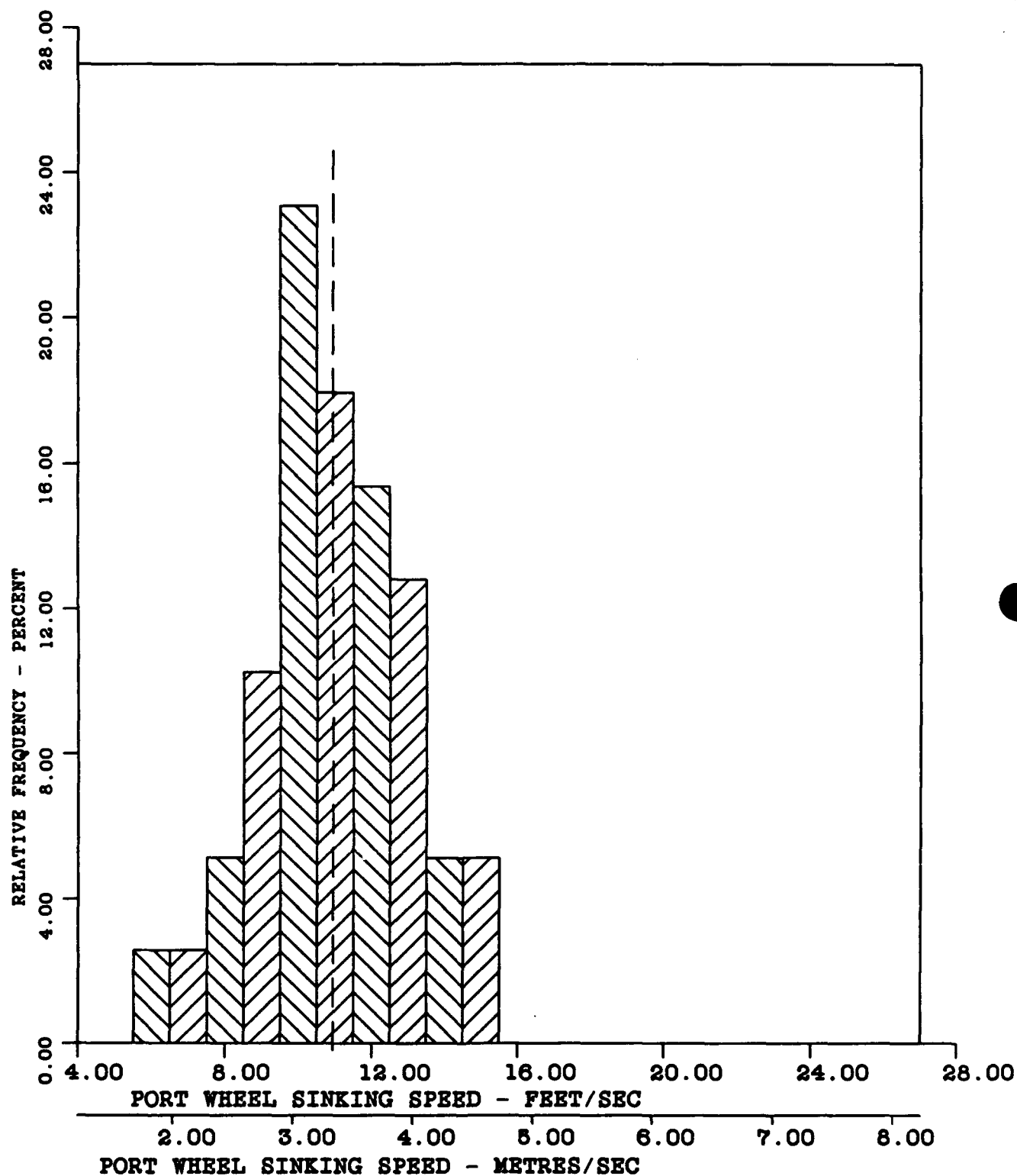


FIGURE G-7 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=39

 $\bar{X}$ =10.93 FEET/SEC (3.33 METRES/SEC)

A3=-.08

S=2.05 FEET/SEC (.62 METRES/SEC)

A4=2.82

CURVE FITTED - NORMAL

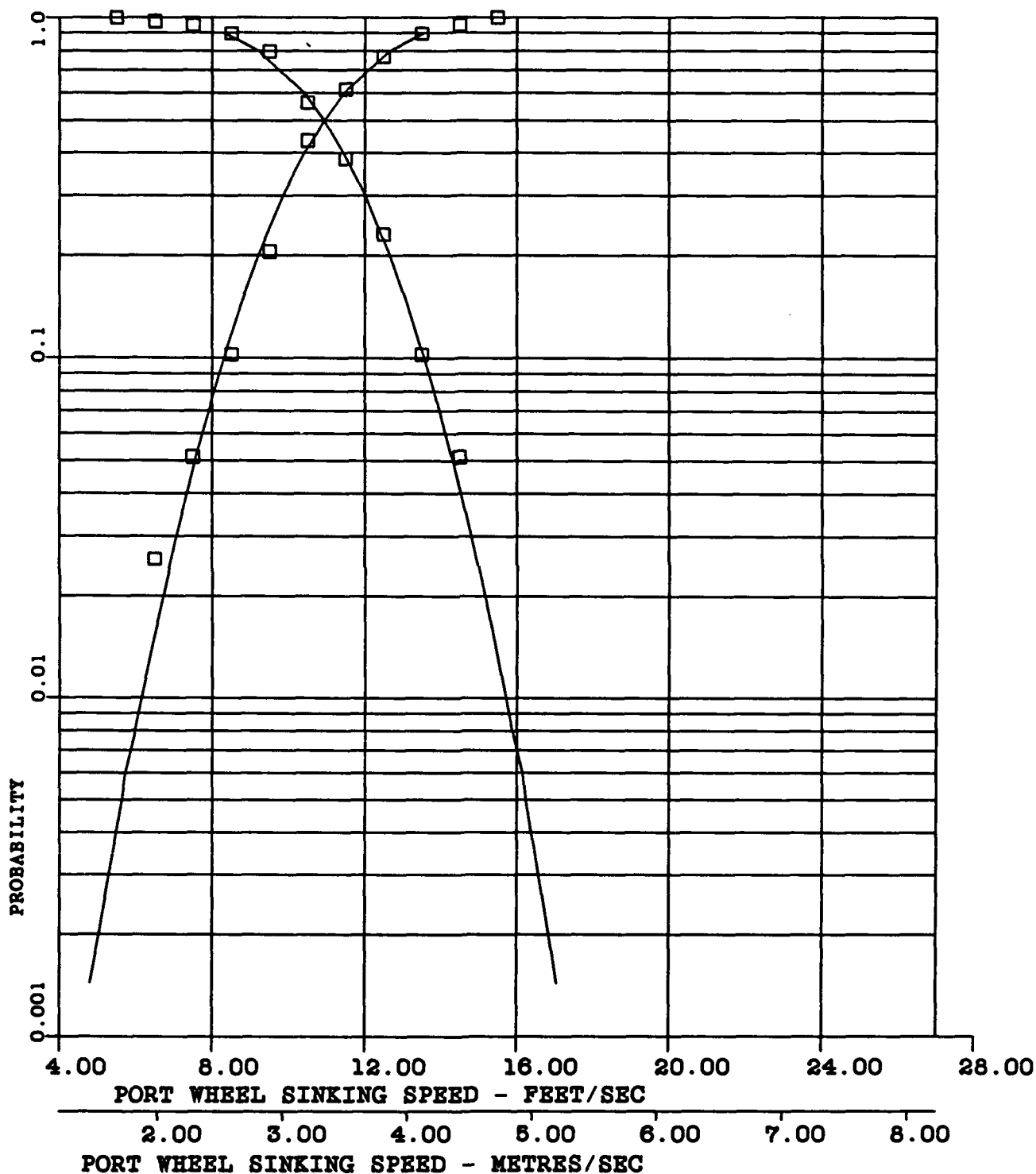


FIGURE G-8 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -10.79 FEET/SEC (3.28 METRES/SEC)

A3--.26

S-1.99 FEET/SEC (.60 METRES/SEC)

A4-3.27

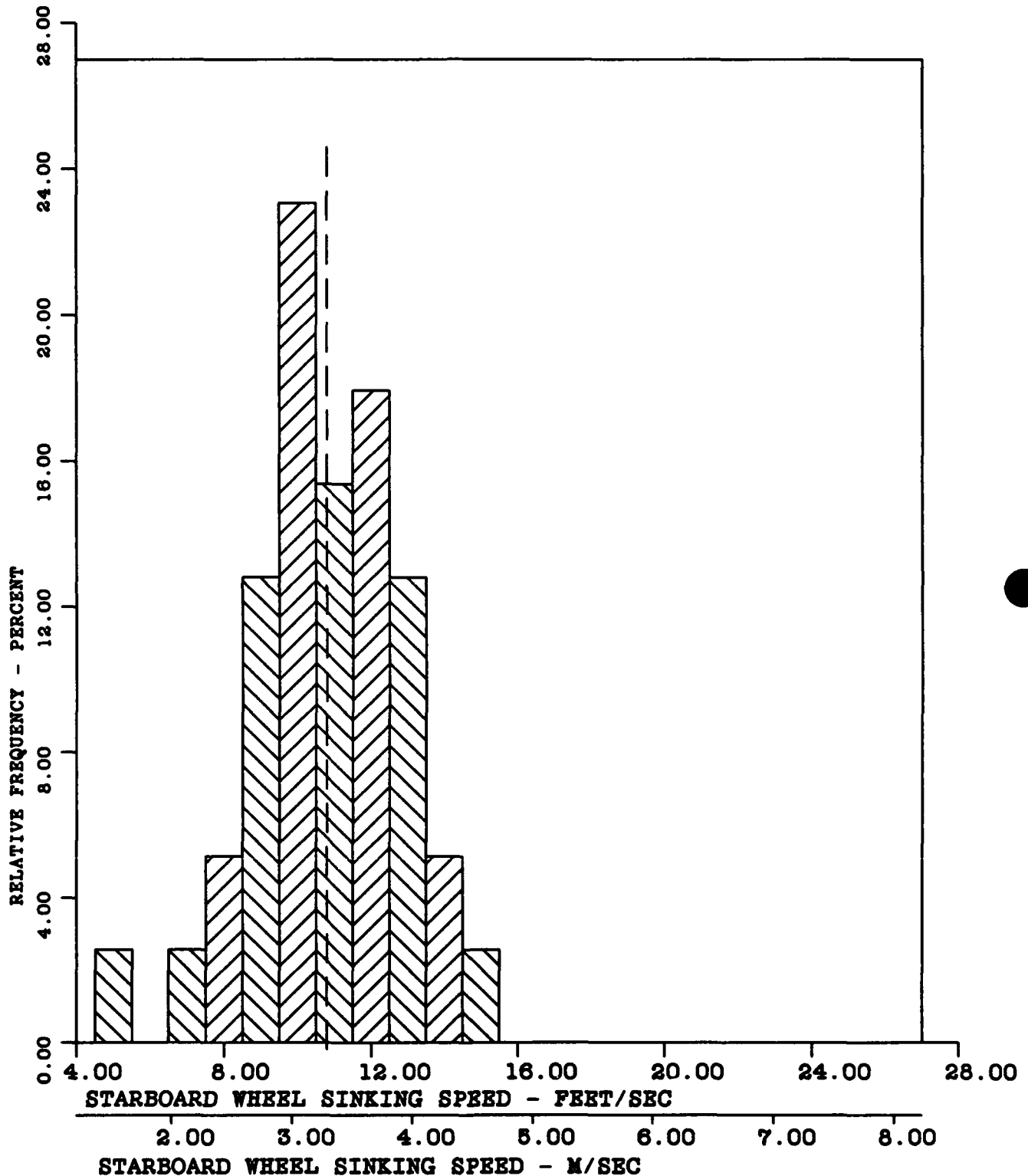


FIGURE G-9 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -10.79 FEET/SEC (3.28 METRES/SEC)

A3--.26

S-1.99 FEET/SEC (.60 METRES/SEC)

A4-3.27

CURVE FITTED - NORMAL

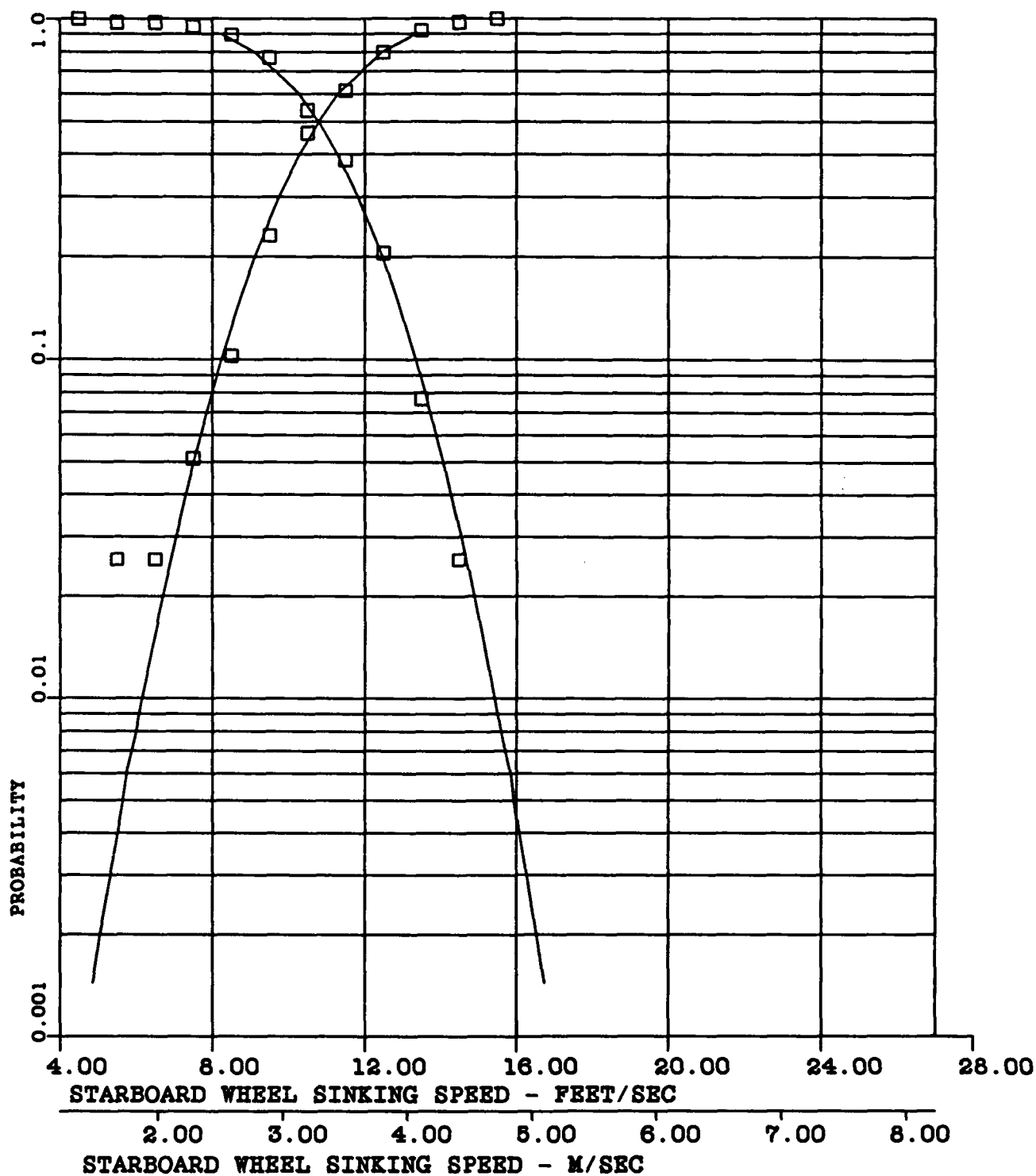


FIGURE G-10 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -10.85 FEET/SEC (3.30 METRES/SEC)

A3--.26

S-2.00 FEET/SEC (.61 METRES/SEC)

A4-3.08

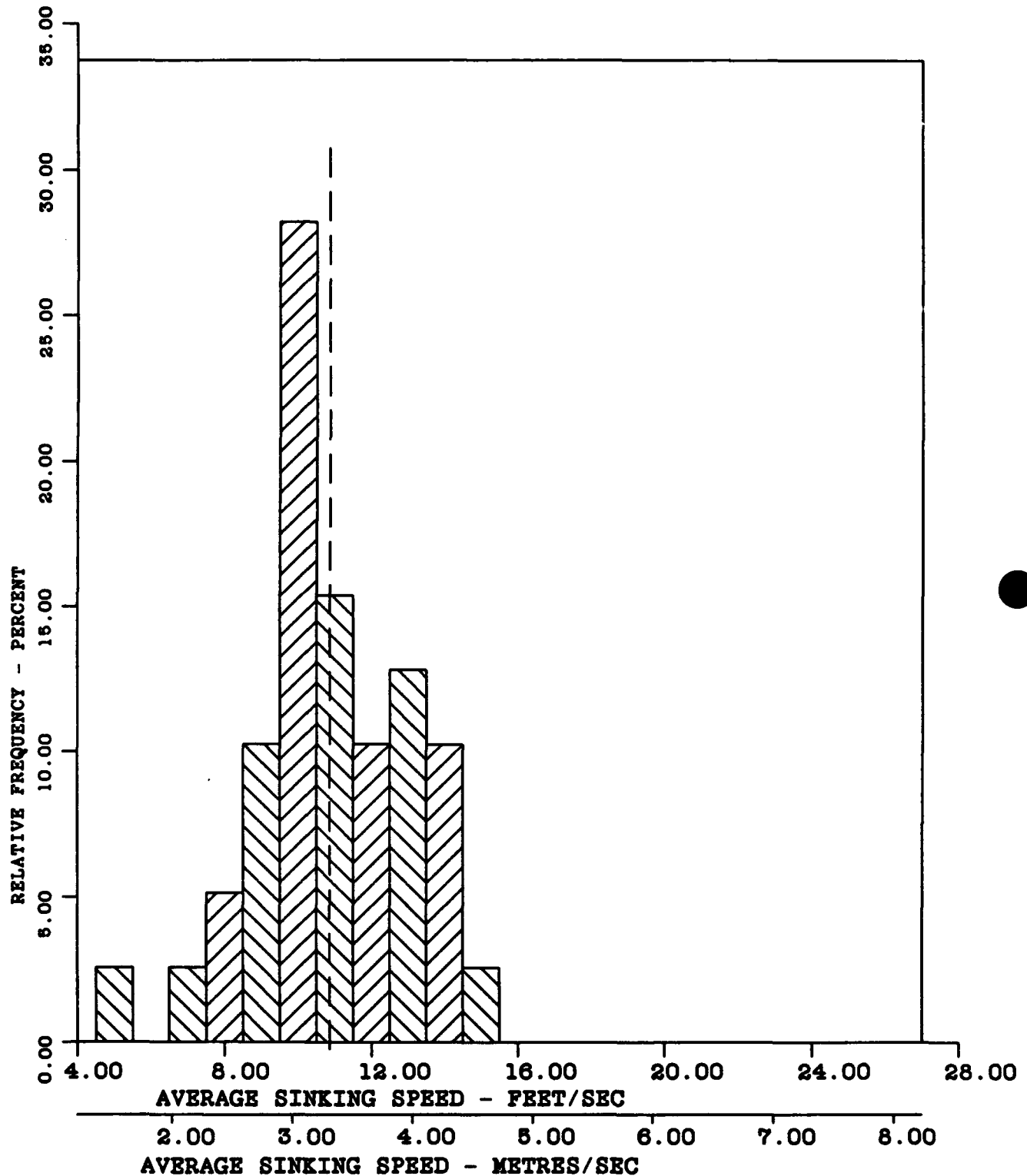


FIGURE G-11 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -10.85 FEET/SEC (3.30 METRES/SEC)

A3--.26

S-2.00 FEET/SEC (.61 METRES/SEC)

A4-3.08

CURVE FITTED - NORMAL

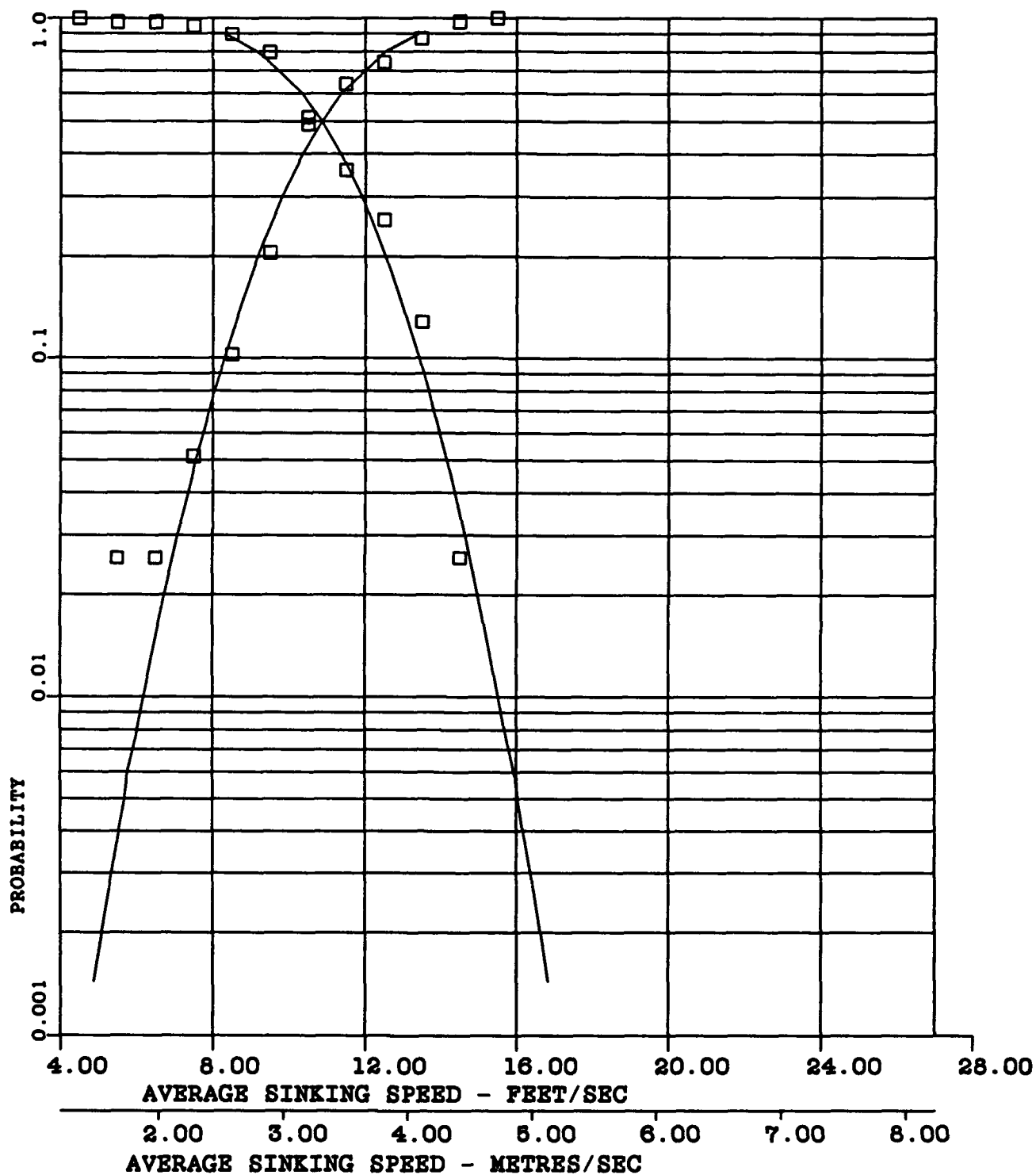


FIGURE G-12 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -8.74 FEET/SEC (2.66 METRES/SEC)

A3--1.21

S-2.16 FEET/SEC (.65 METRES/SEC)

A4-2.95

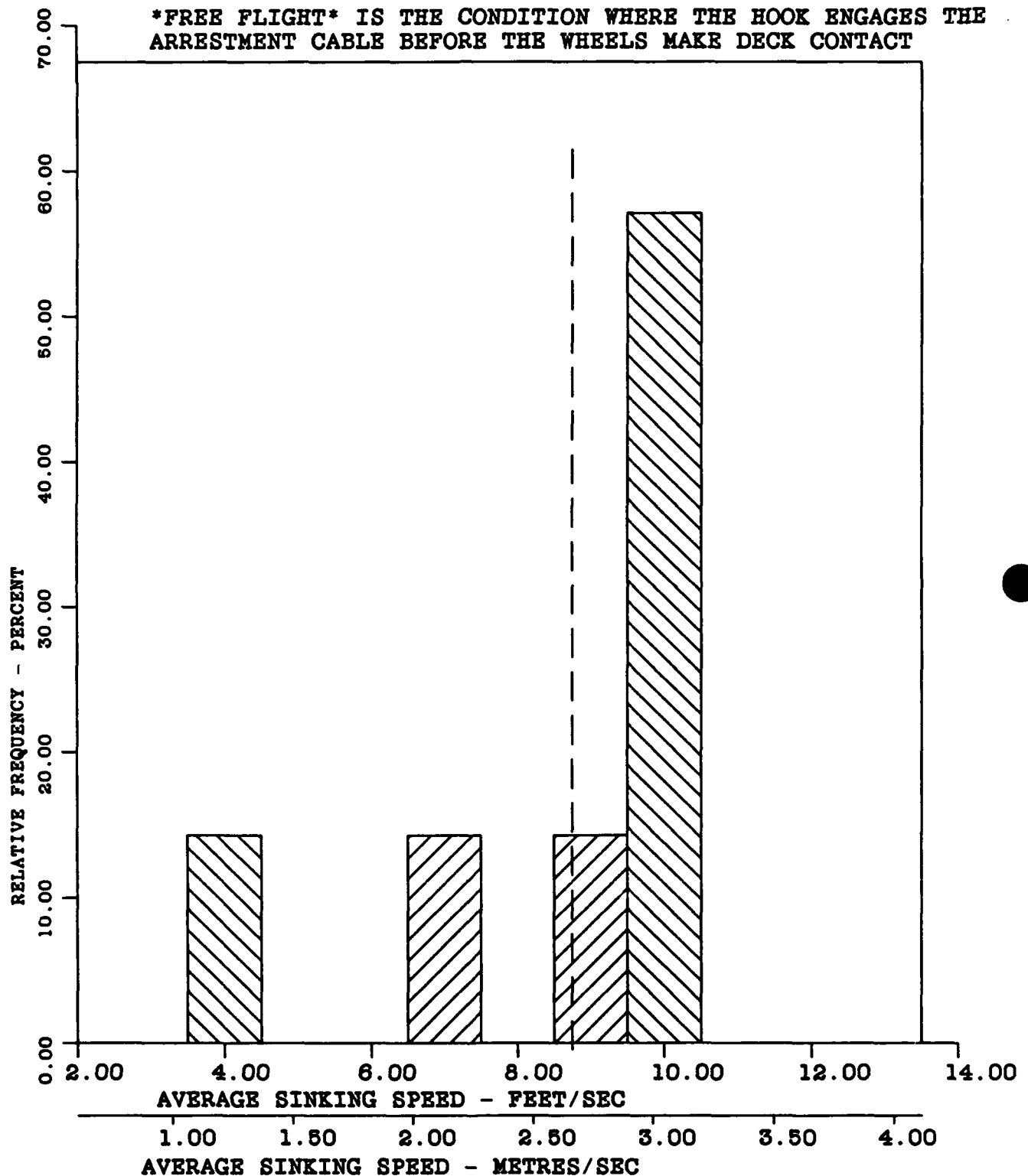


FIGURE G-13 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -8.74 FEET/SEC (2.66 METRES/SEC)

A3--1.21

S-2.16 FEET/SEC (.65 METRES/SEC)

A4-2.95

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

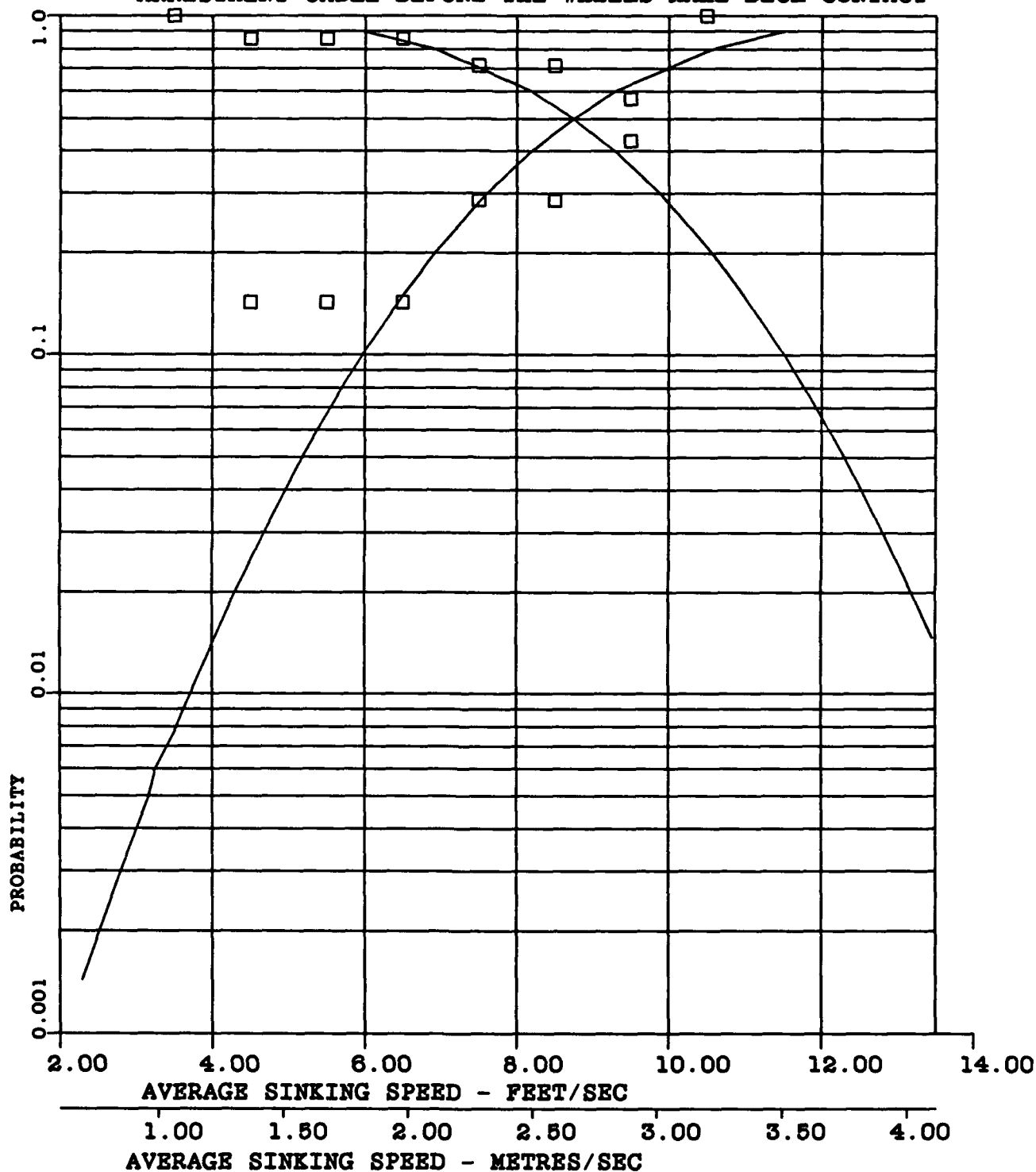


FIGURE G-14 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -1.04

S-.10

A3-.82

A4-3.53

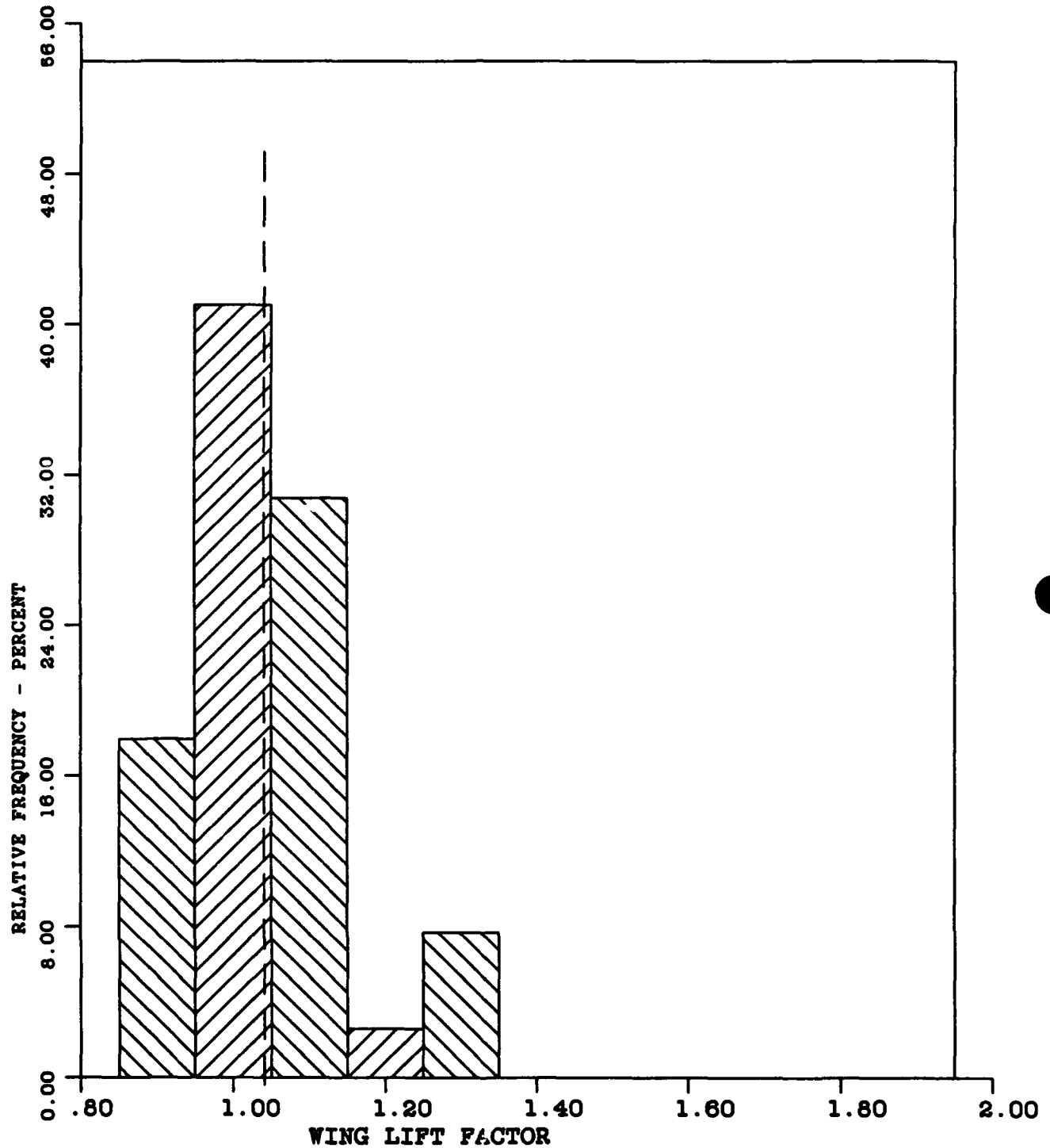


FIGURE G-15 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -1.04

A3-.82

S-.10

A4-3.53

CURVE FITTED - PEARSON TYPE III

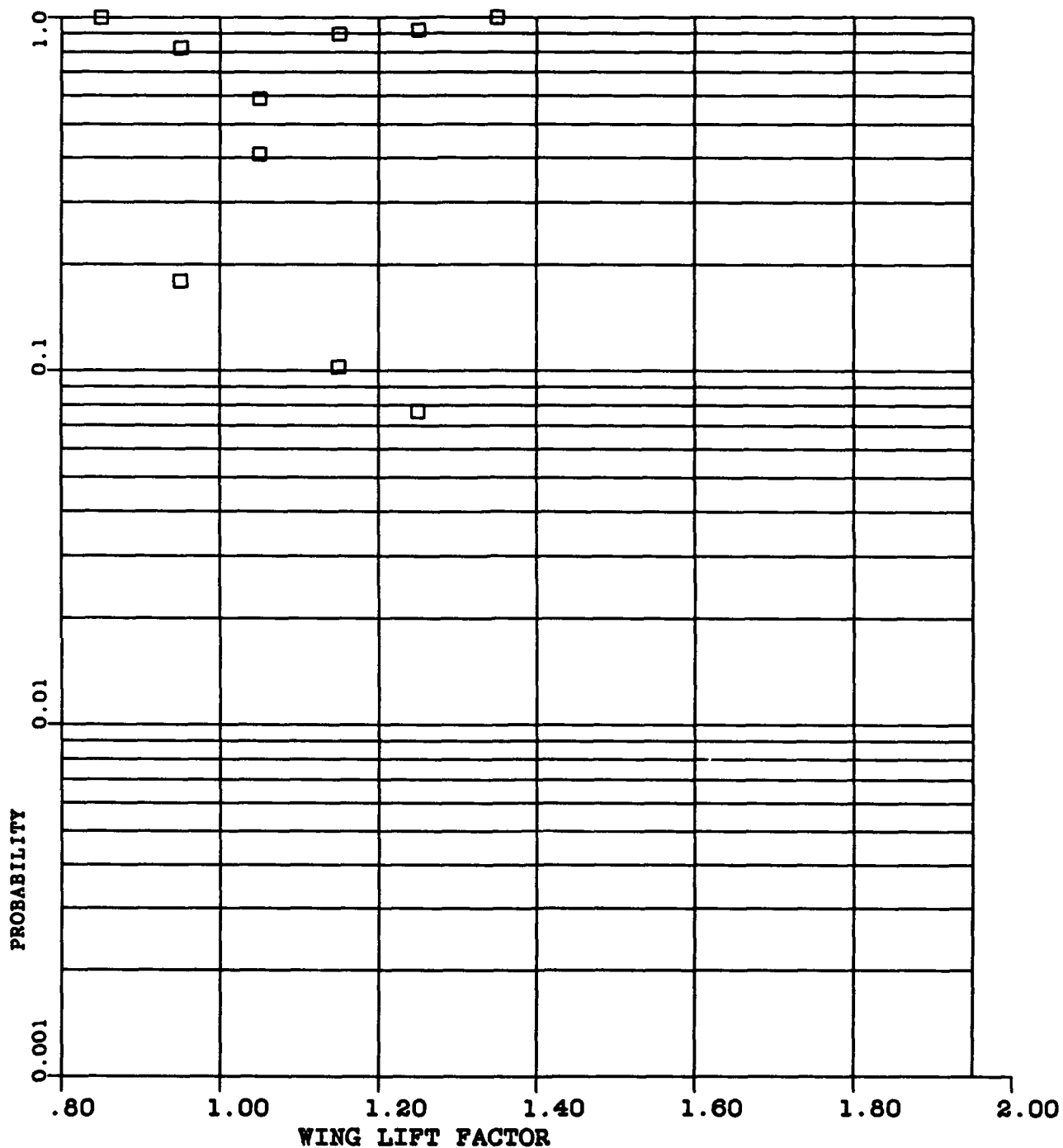


FIGURE G-16 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -1.08

S-.11

A3-.88

A4-2.22

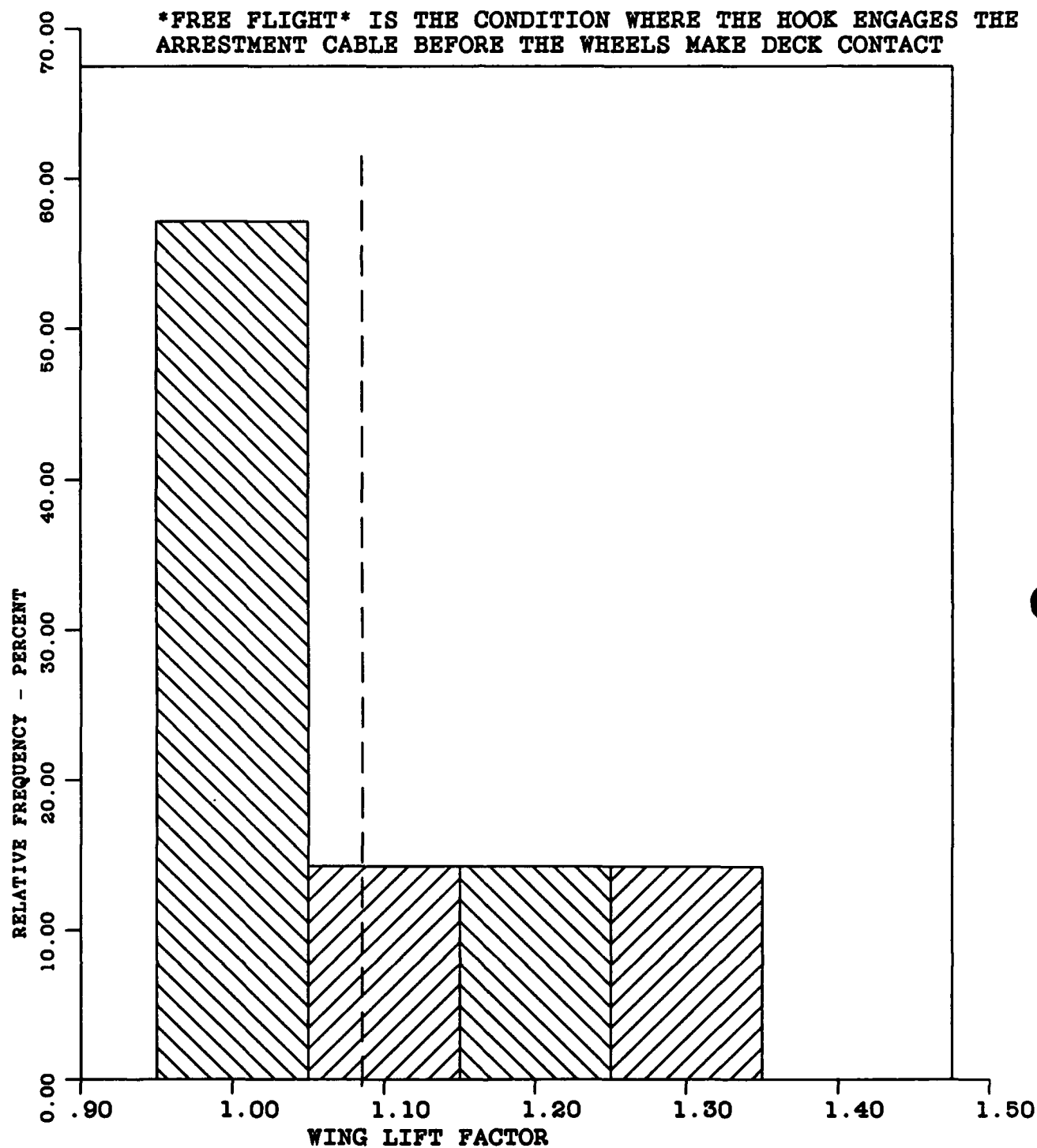


FIGURE G-17 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=7

 $\bar{X}=1.08$ 

S=.11

A3=.88

A4=2.22

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

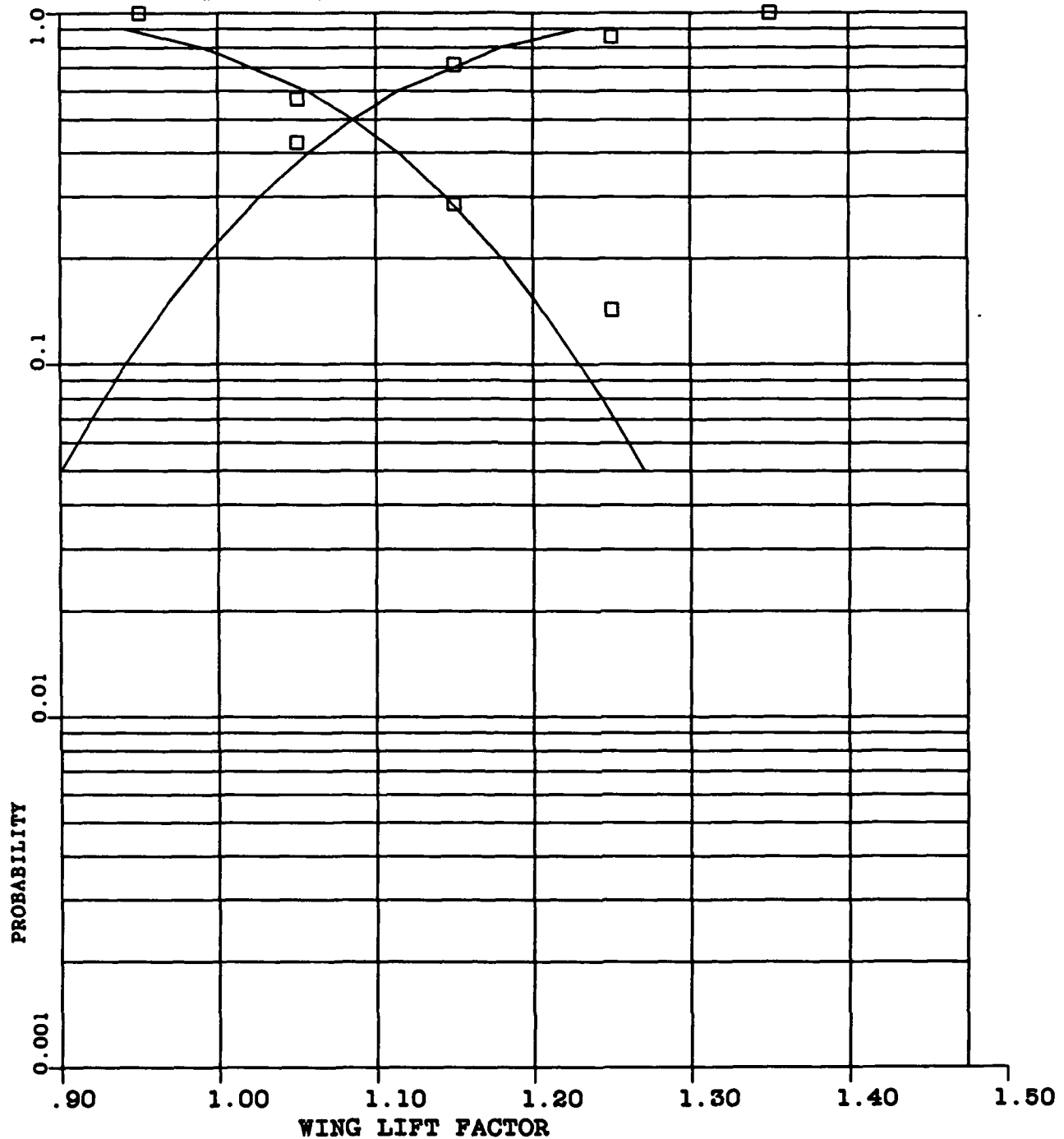


FIGURE G-18 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -8.16 DEGREES (.142 RADIANS)

A3-.52

S-1.17 DEGREES (.020 RADIANS)

A4-4.93

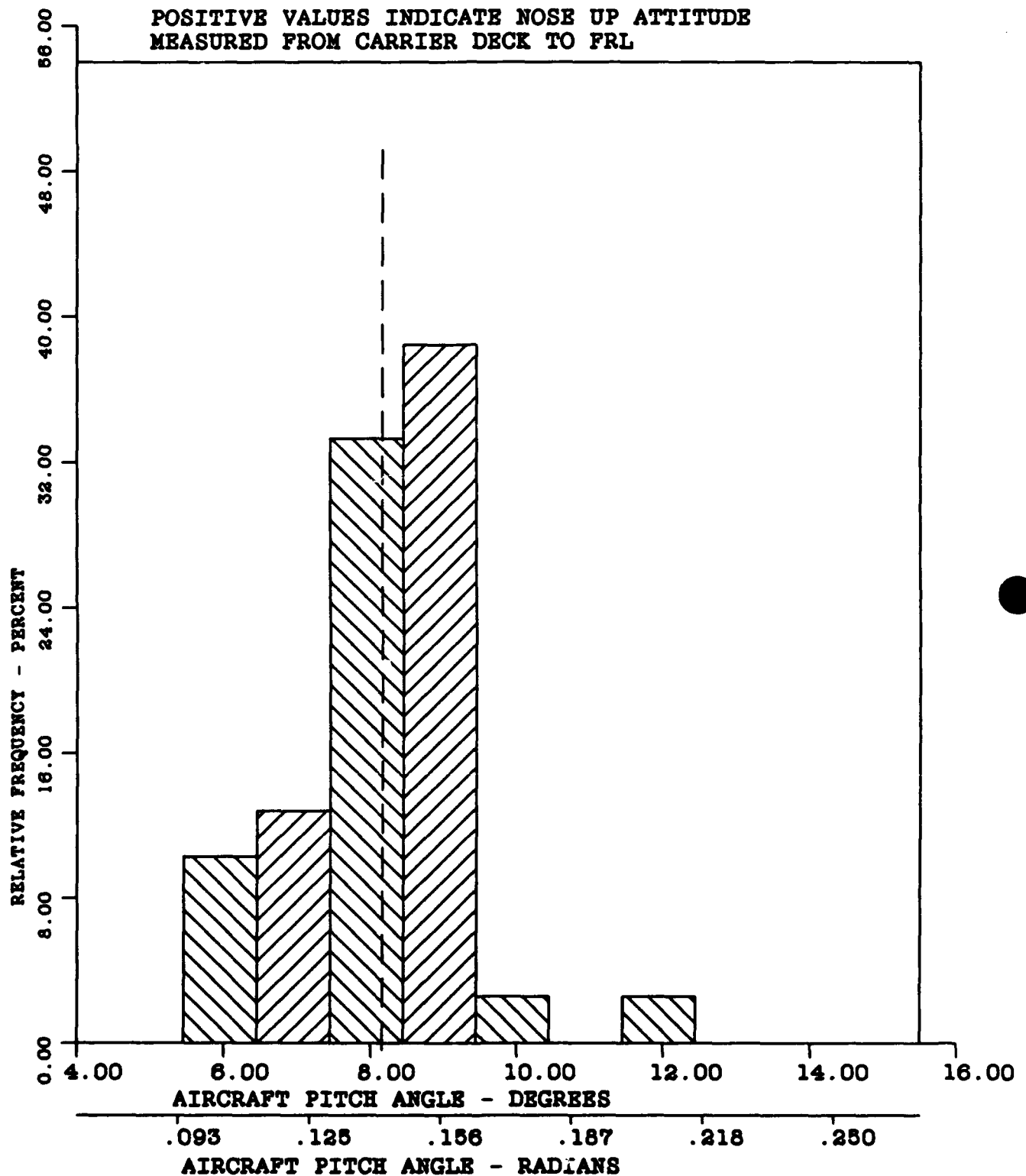


FIGURE G-19 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ =8.16 DEGREES (.142 RADIANS)

A3=.52

S=1.17 DEGREES (.020 RADIANS)

A4=4.93

CURVE FITTED - NORMAL

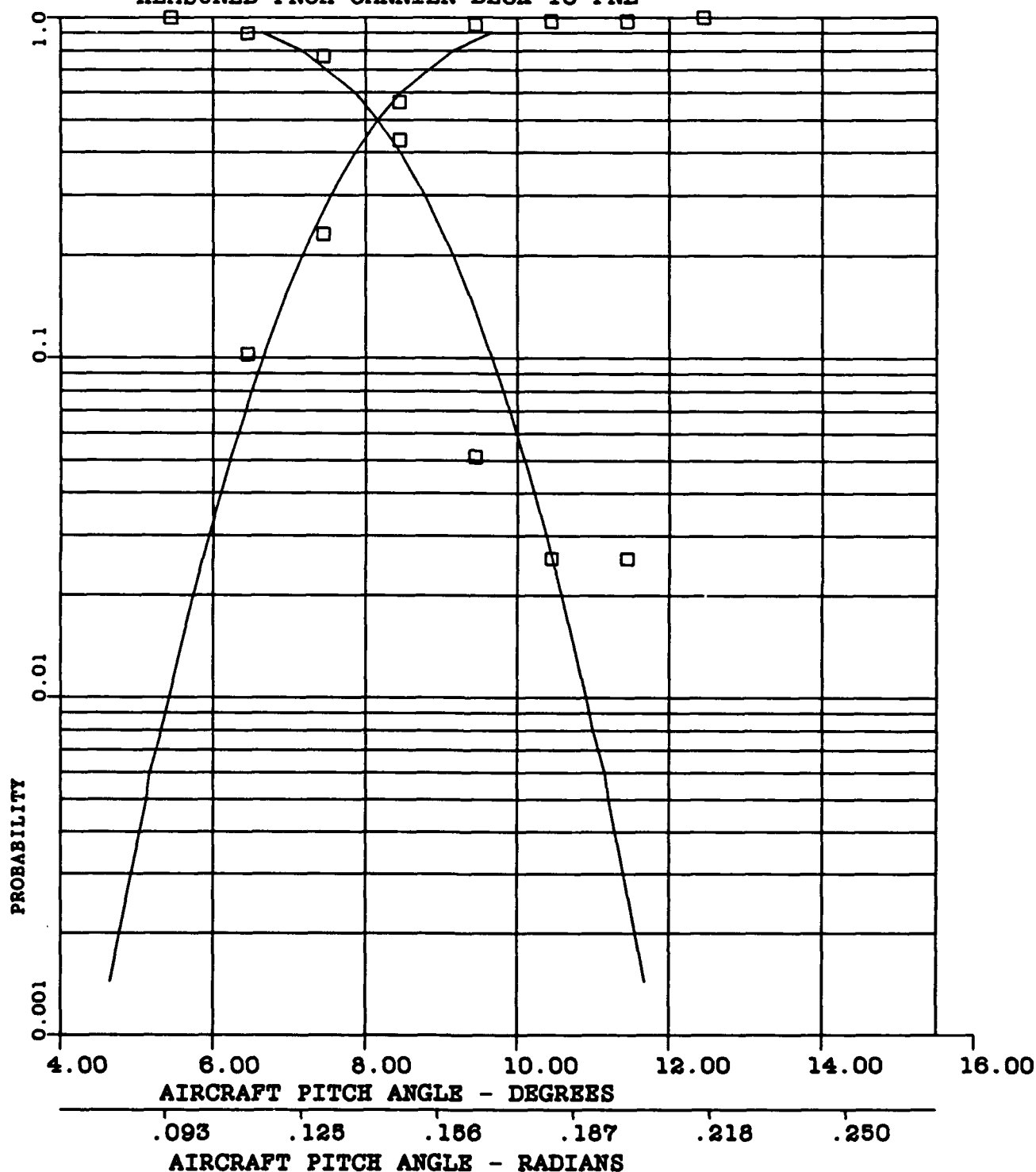
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE G-20 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -8.51 DEGREES (.148 RADIANS)

A3-.08

S-.70 DEGREES (.012 RADIANS)

A4-2.05

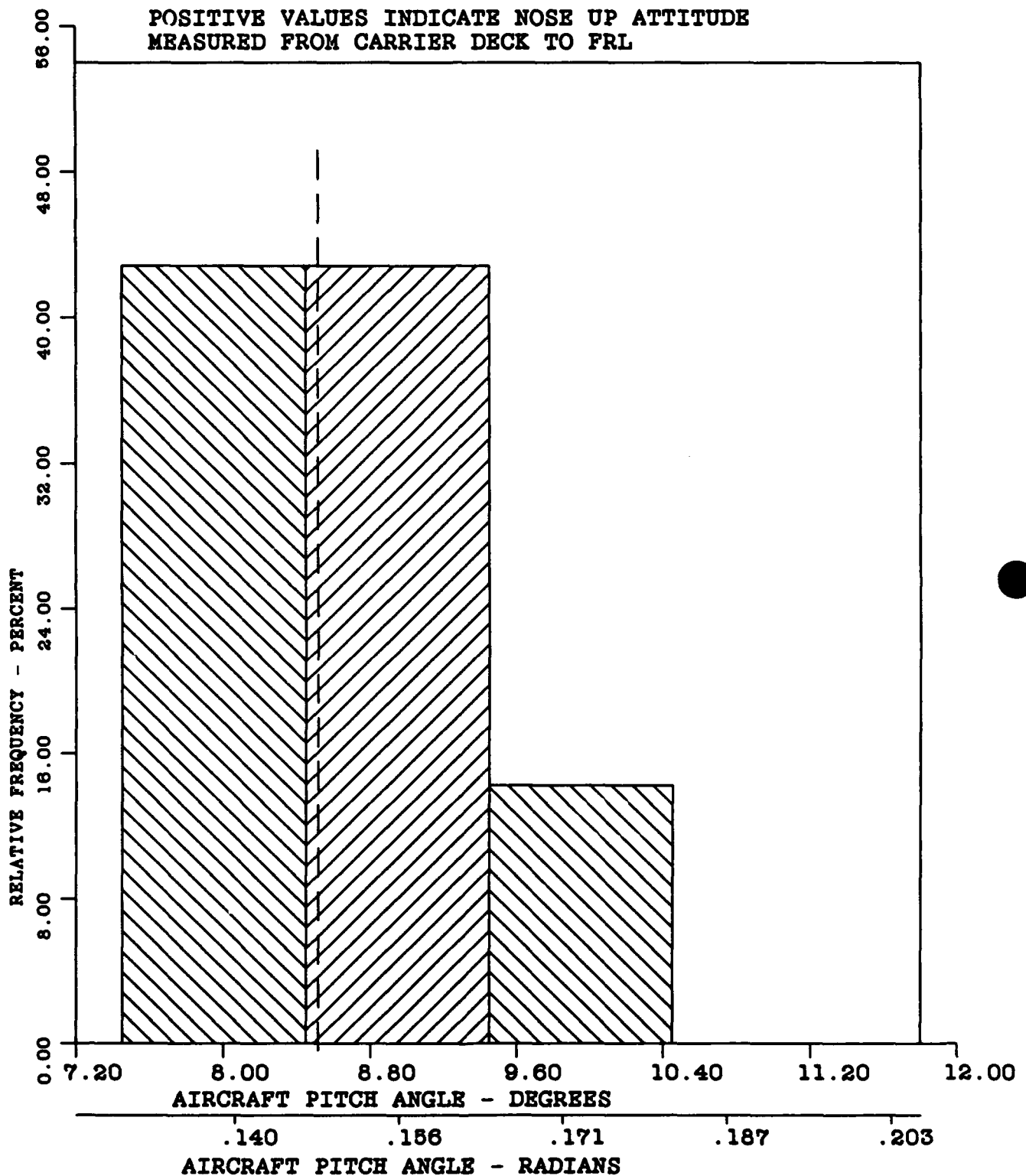


FIGURE G-21 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -8.51 DEGREES (.148 RADIANS)

A3-.08

S-.70 DEGREES (.012 RADIANS)

A4-2.05

CURVE FITTED - NORMAL

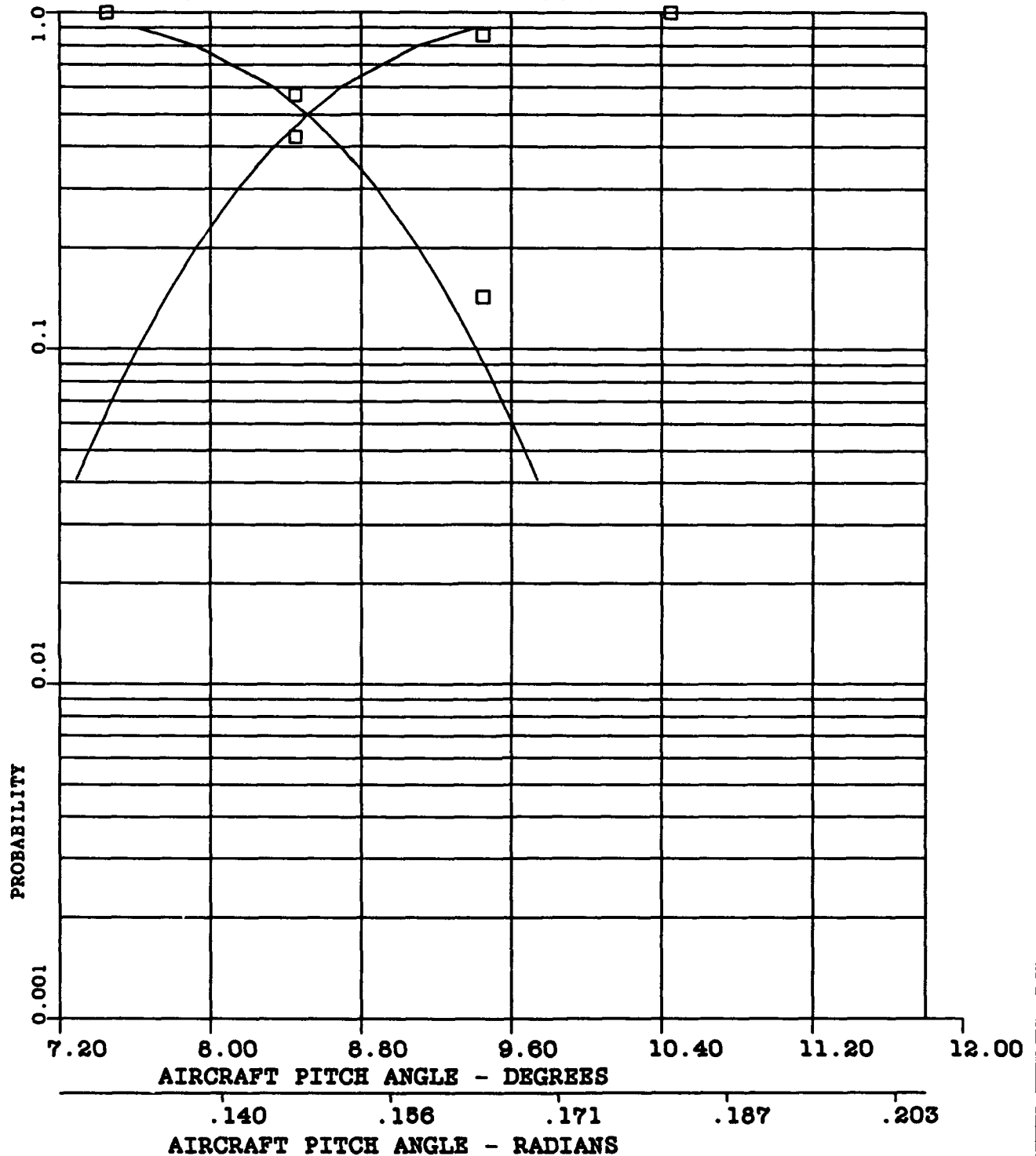
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE G-22 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -.39 DEGREES (.006 RADIANS)

A3--.04

S-1.74 DEGREES (.030 RADIANS)

A4-2.28

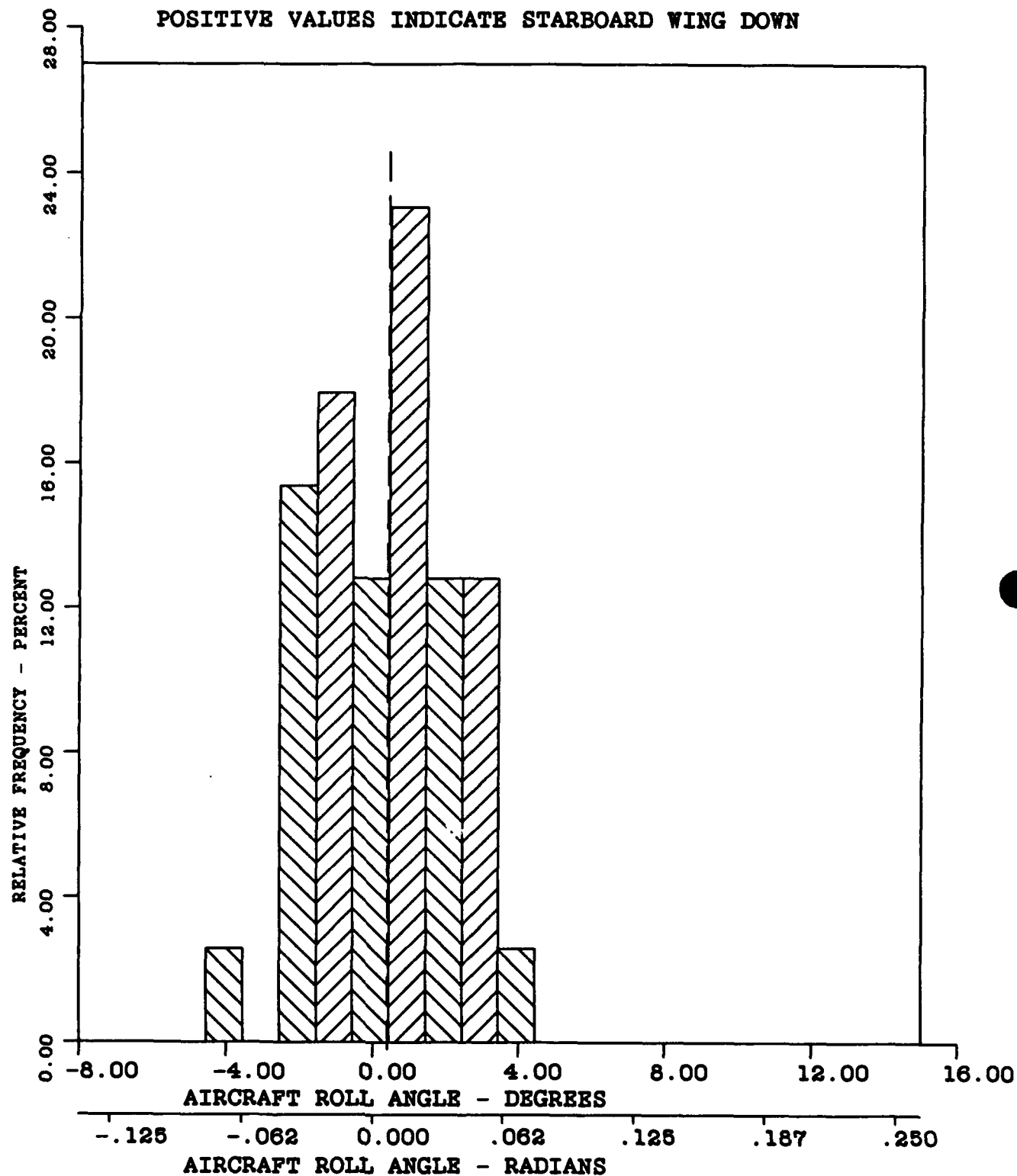


FIGURE G-23 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -.39 DEGREES (.006 RADIANS)

A3--.04

S-1.74 DEGREES (.030 RADIANS)

A4-2.28

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

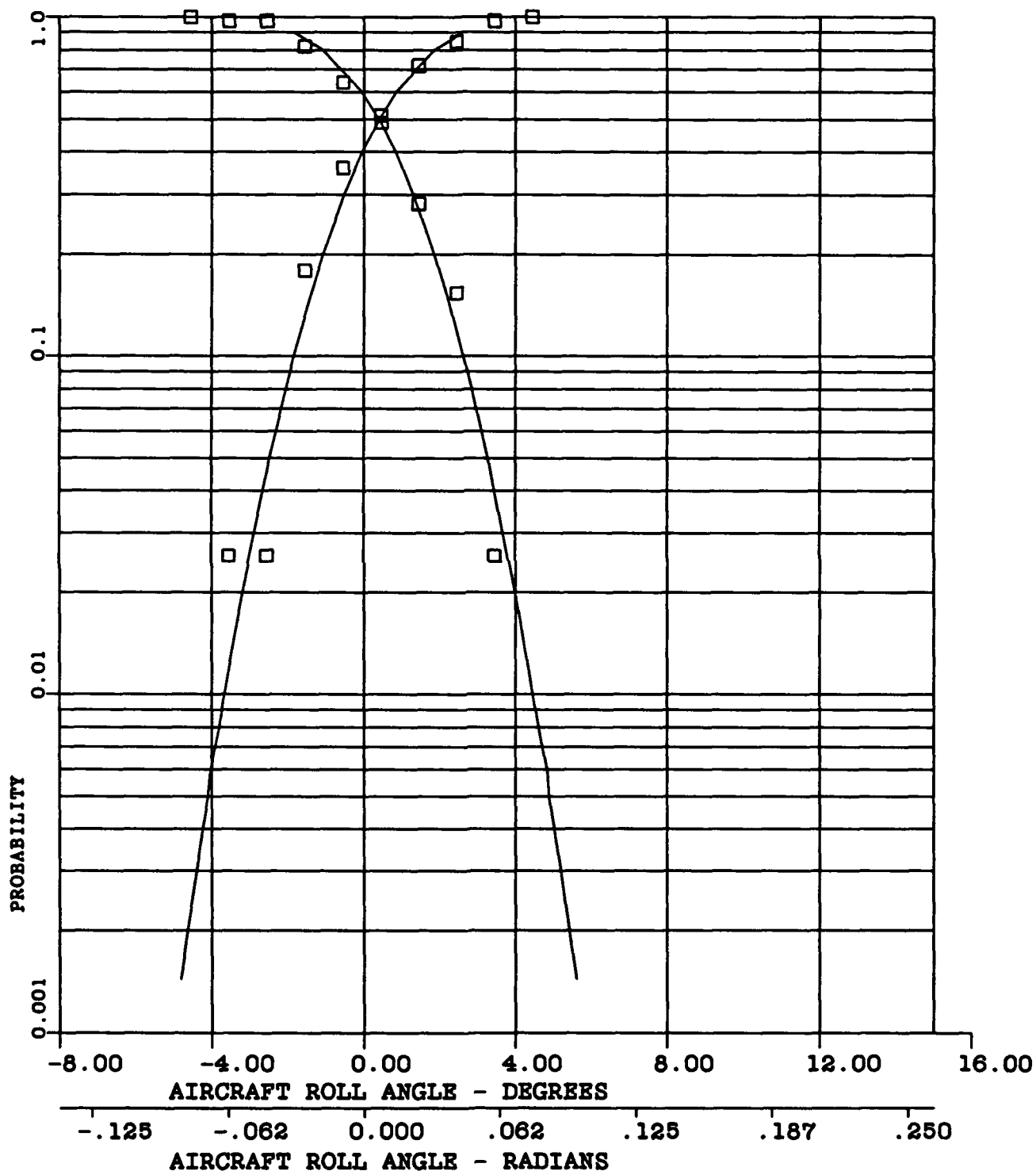


FIGURE G-24 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -.21 DEGREES (.003 RADIANS)

A3--.04

S-1.63 DEGREES (.028 RADIANS)

A4-1.33

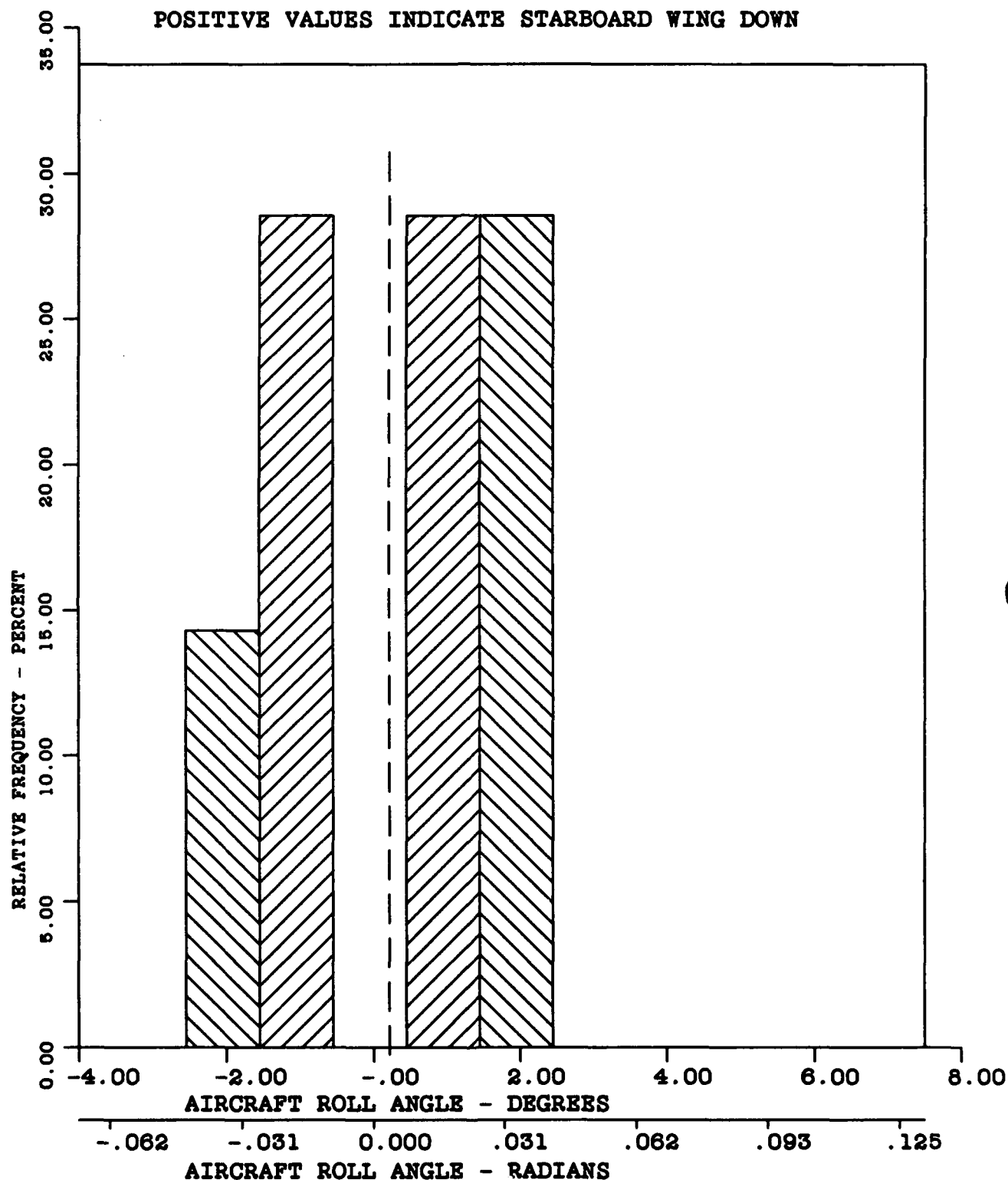


FIGURE G-25 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -.21 DEGREES (.003 RADIANS)

A3--.04

S=1.63 DEGREES (.028 RADIANS)

A4-1.33

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

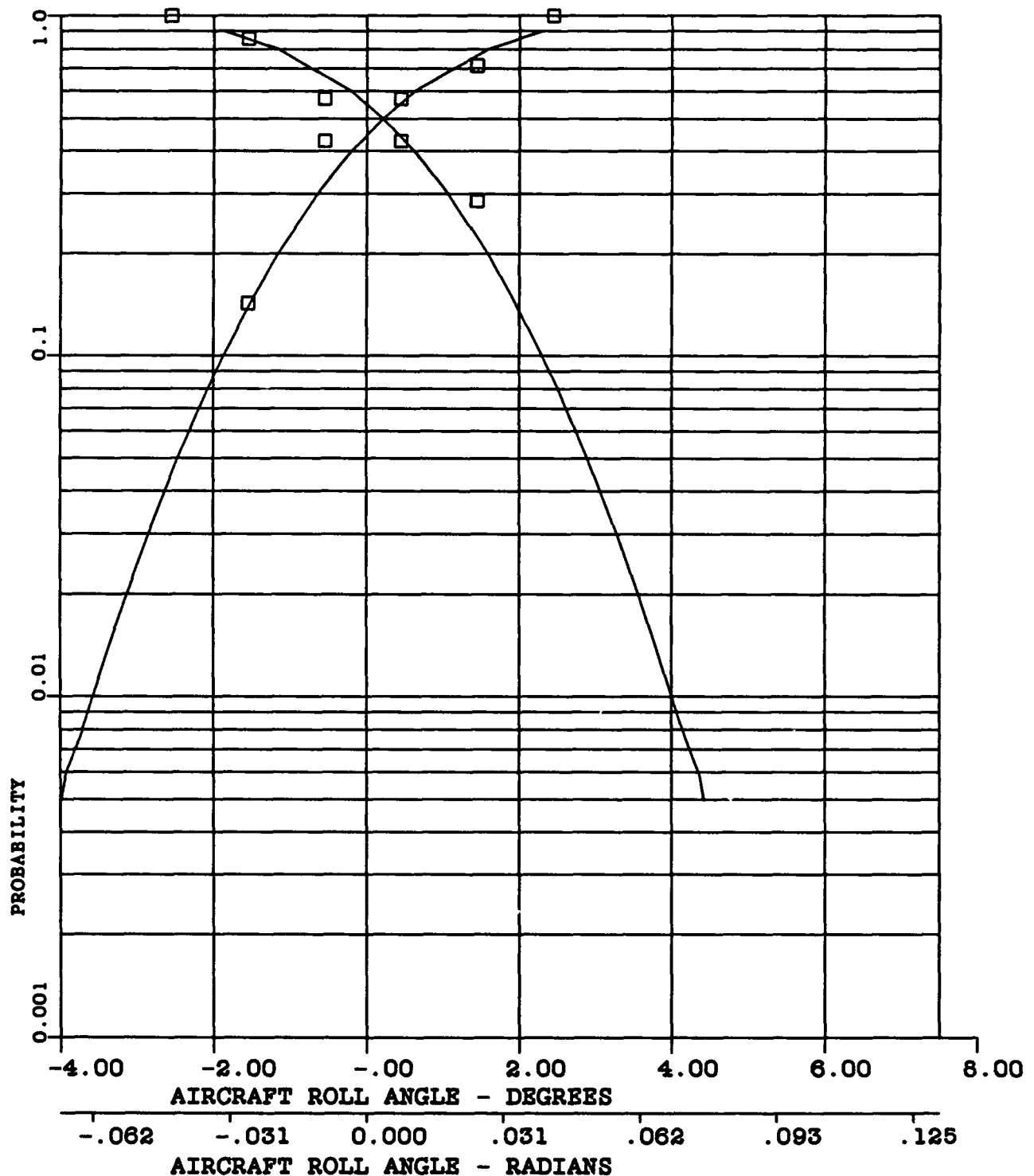


FIGURE G-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -265.38 FEET (80.88 METRES)

A3-.51

S-27.57 FEET (8.40 METRES)

A4-2.51

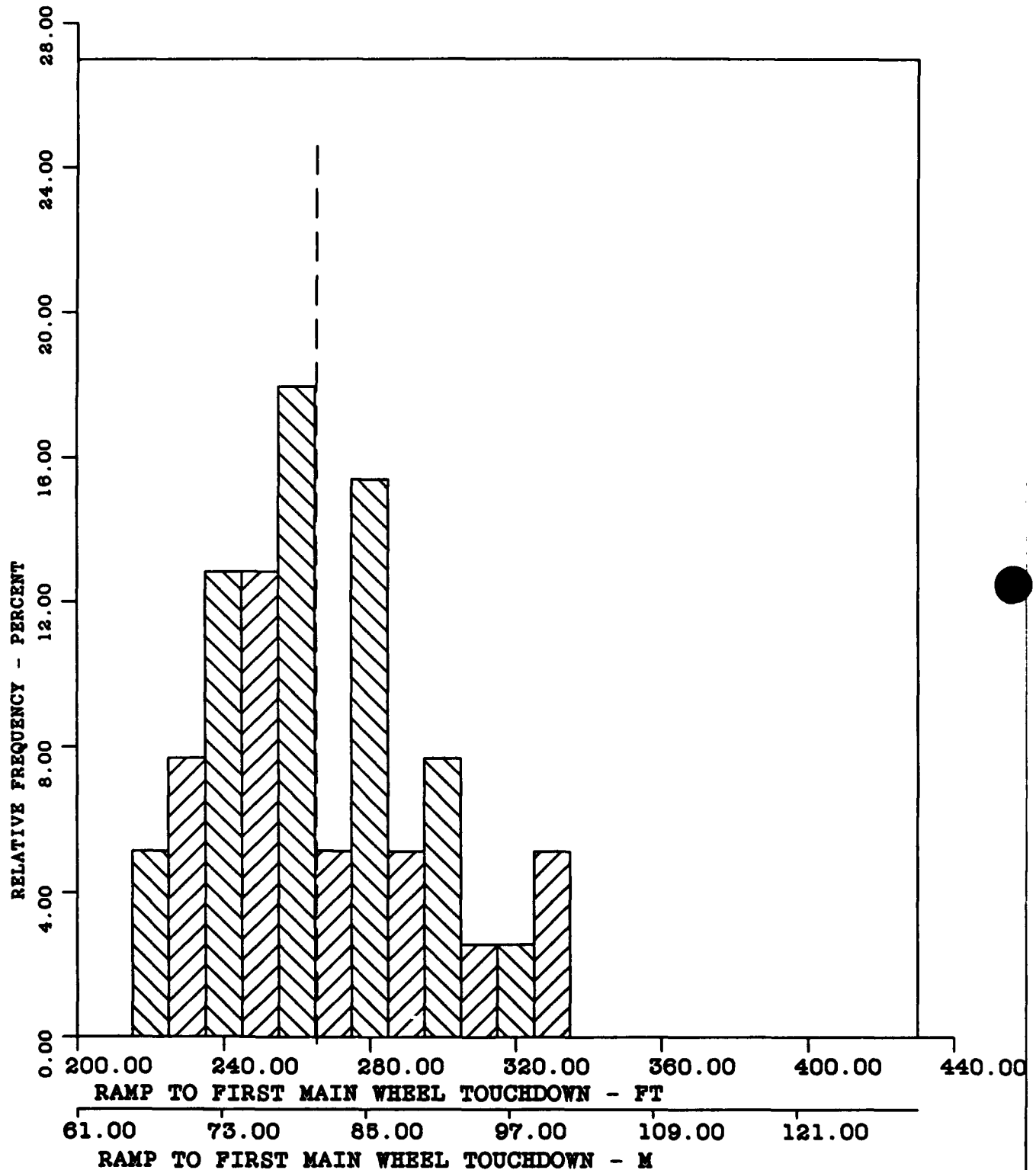


FIGURE G-27 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -265.38 FEET (80.88 METRES)

A3-.51

S-27.57 FEET (8.40 METRES)

A4-2.51

CURVE FITTED - NORMAL

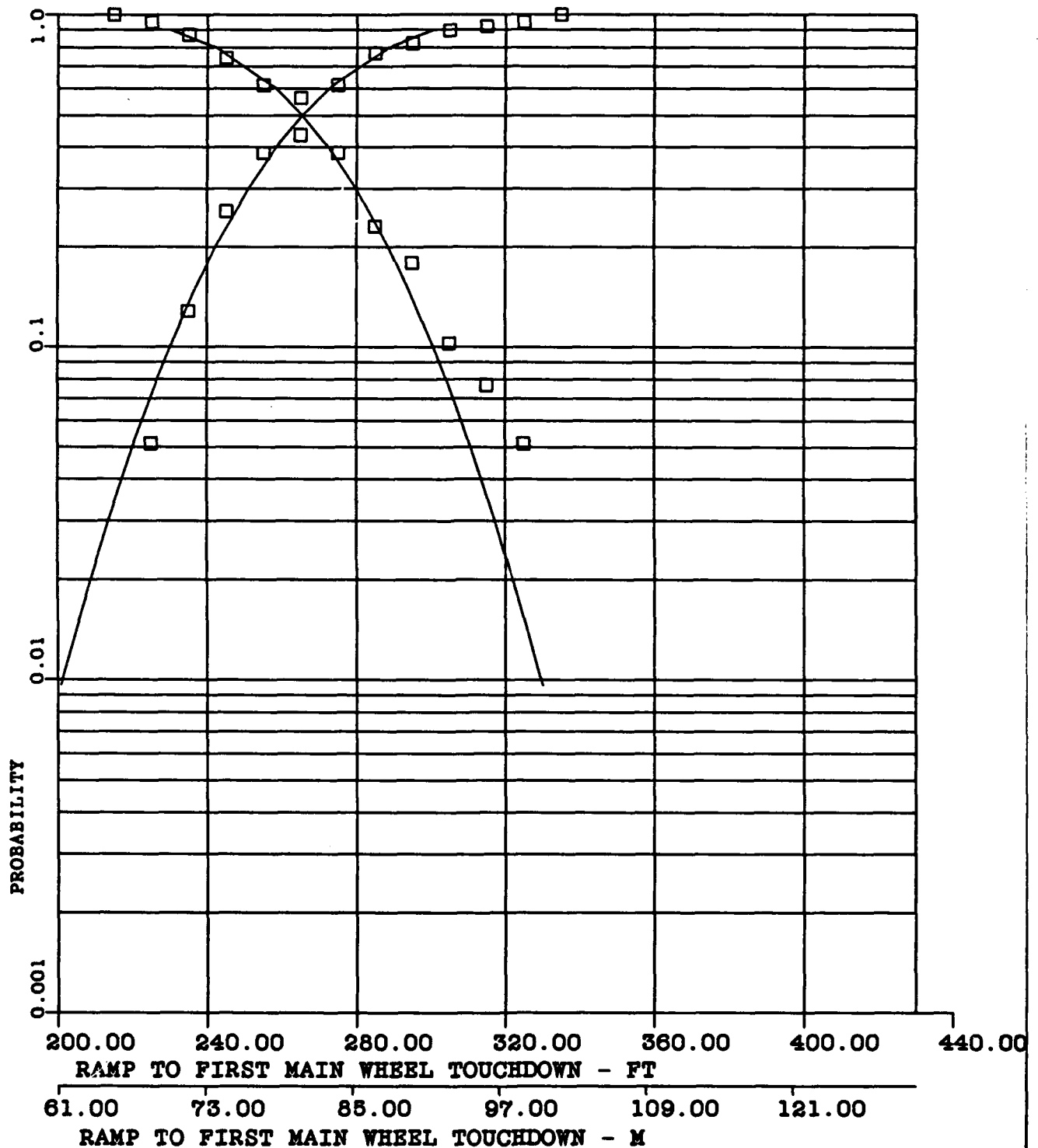


FIGURE G-28 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -11.00 FEET (-3.35 METRES)

A3--.03

S-3.86 FEET (1.17 METRES)

A4-2.88

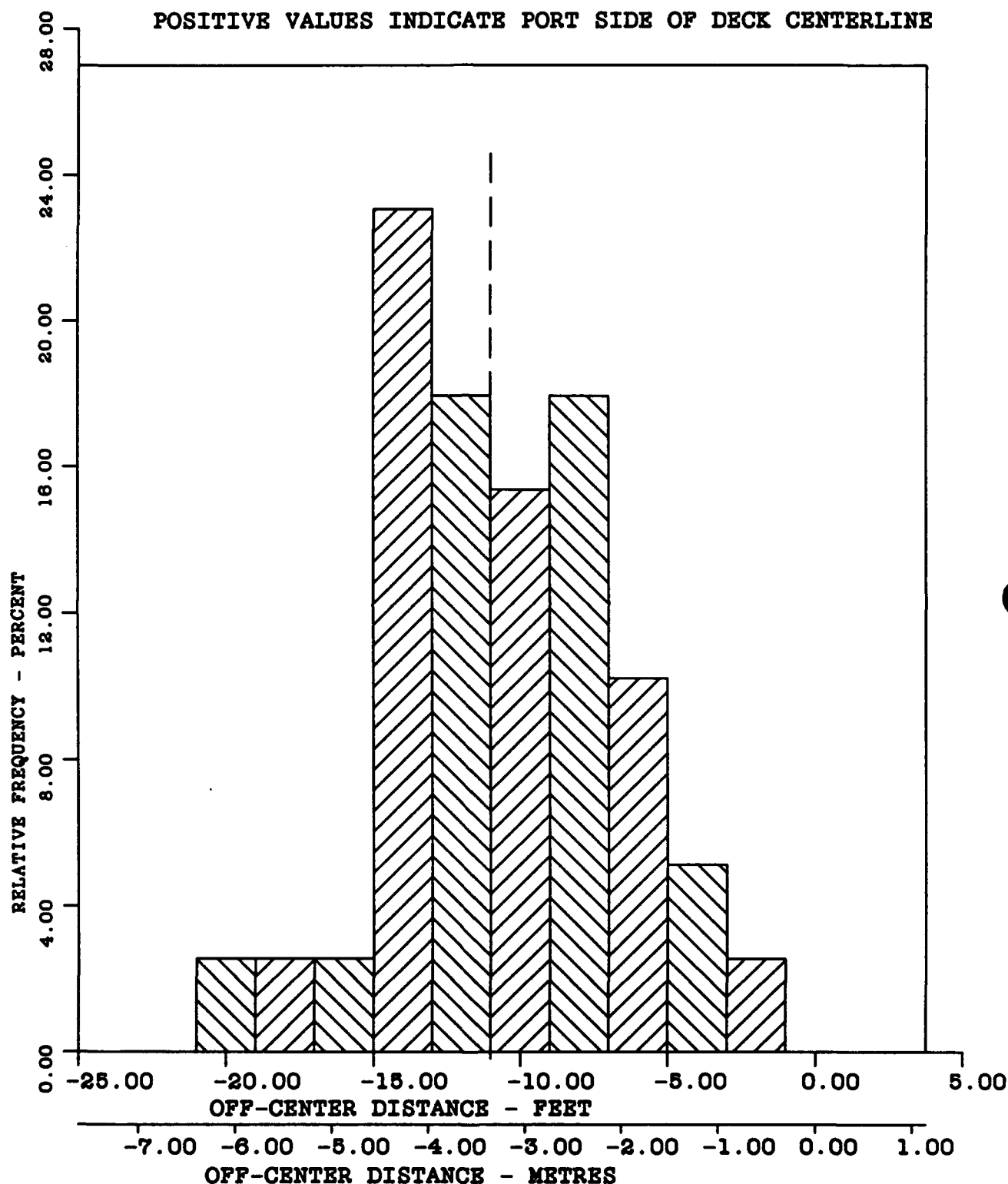


FIGURE G-29 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ =-11.00 FEET (-3.35 METRES)

A3=-.03

S=3.86 FEET (1.17 METRES)

A4=2.88

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

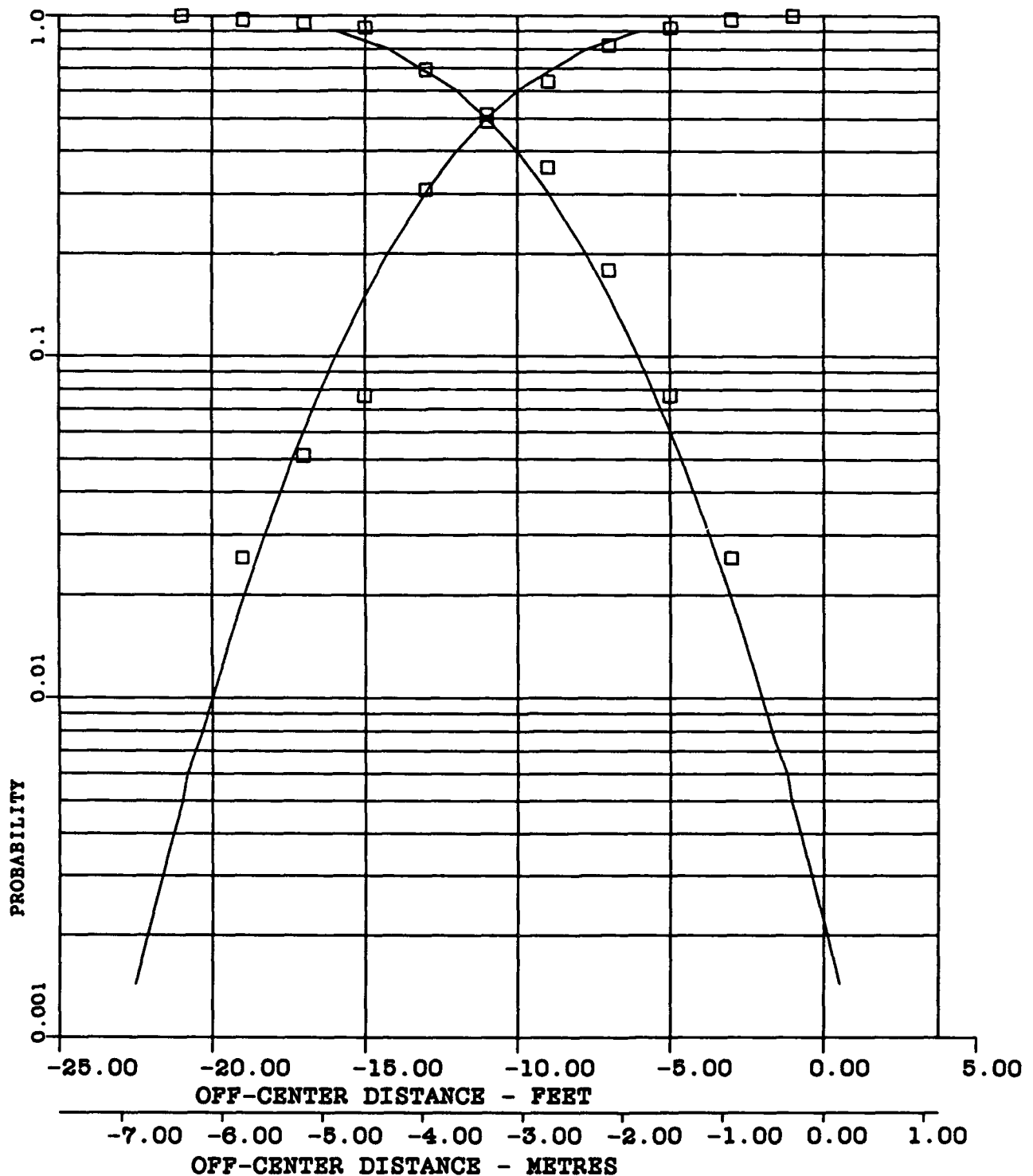


FIGURE G-30 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-31

 $\bar{X}$ -3.06

A3--.11

S-.80

A4-1.56

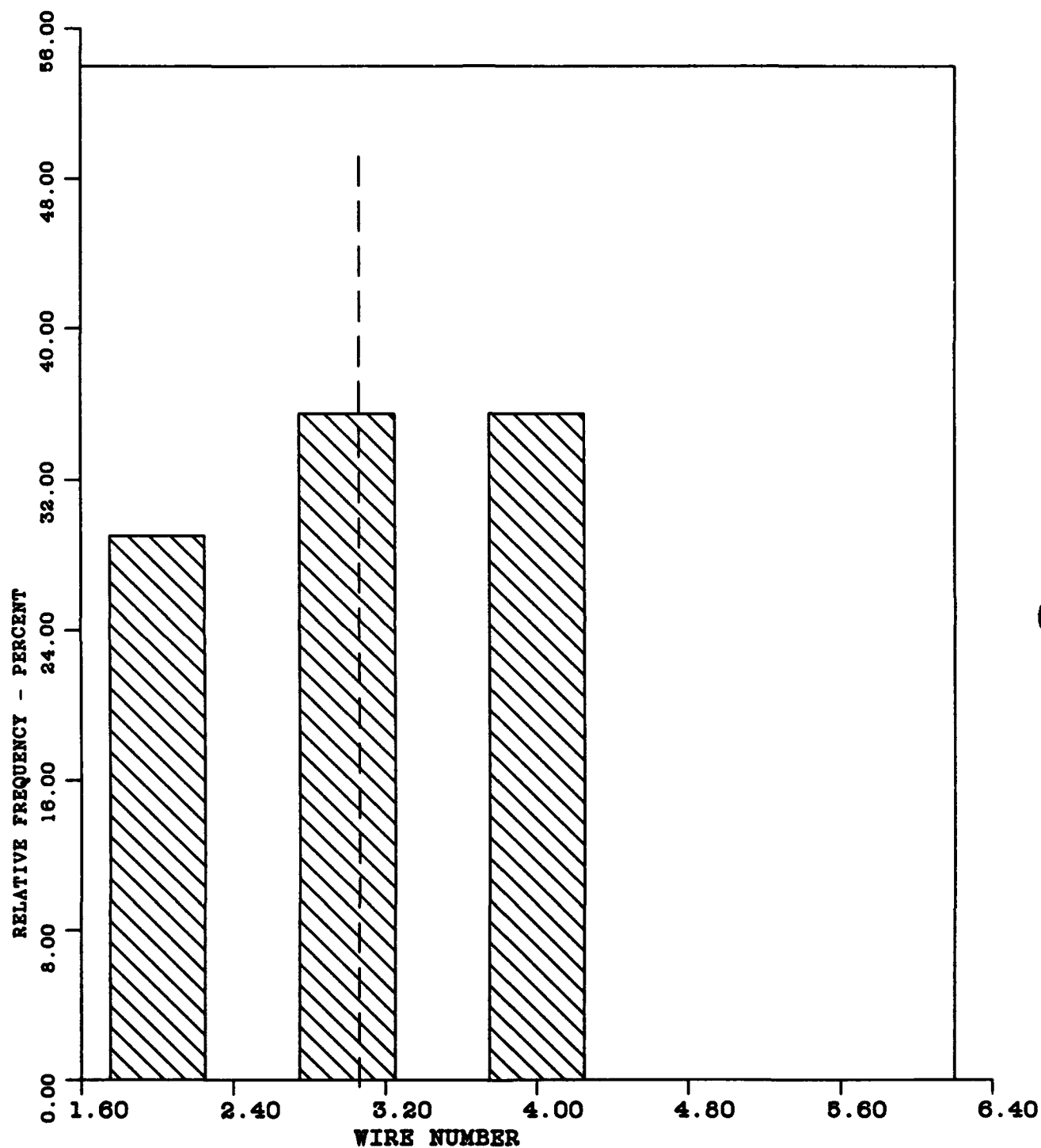


FIGURE G-31 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -3.49 DEGREES (.061 RADIANS)

A3--.17

S-.78 DEGREES (.013 RADIANS)

A4-2.39

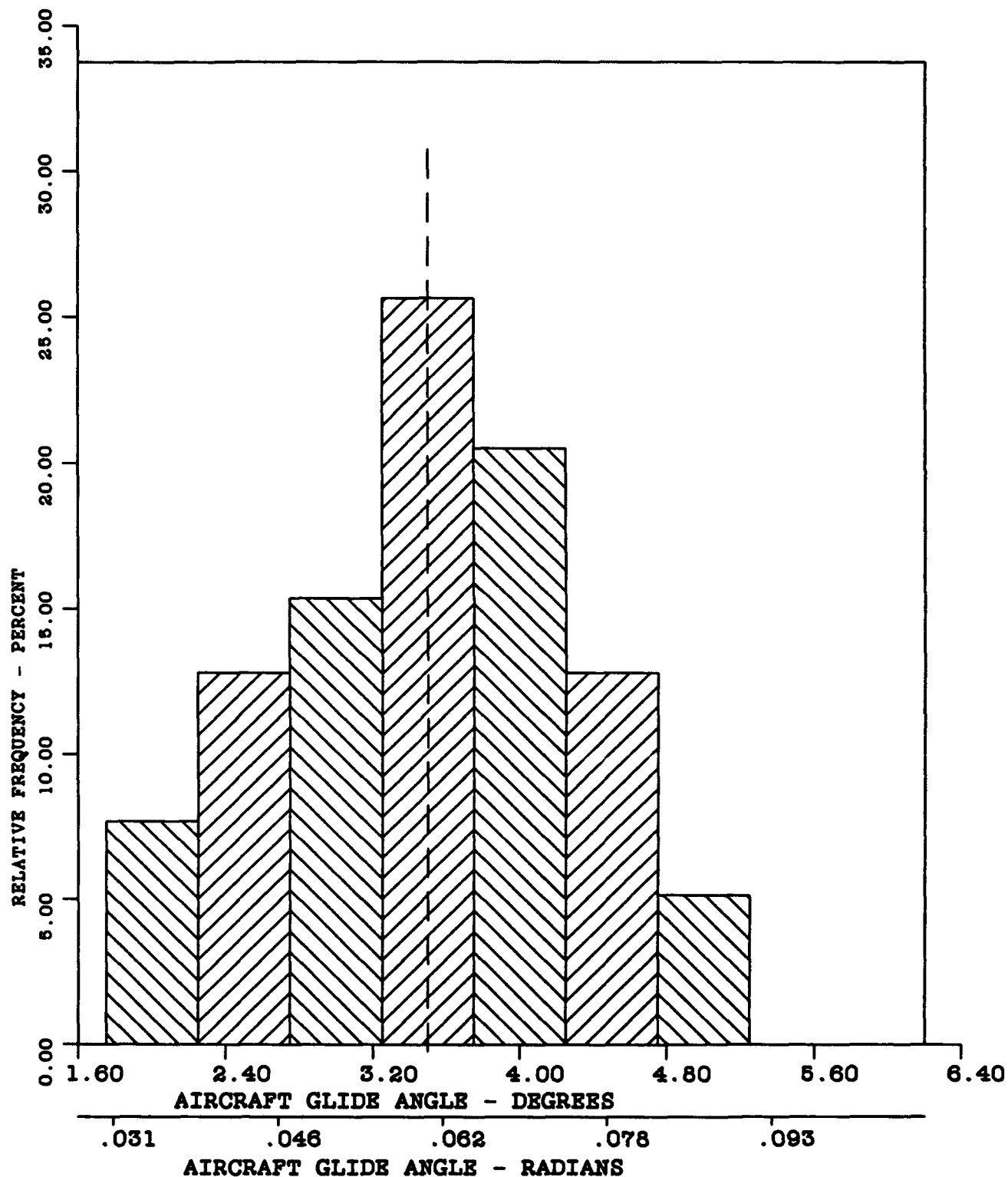


FIGURE G-32 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -100.64 KNOTS (51.77 METRES/SEC)

S-3.64 KNOTS (1.87 METRES/SEC)

A3-.64

A4-3.44

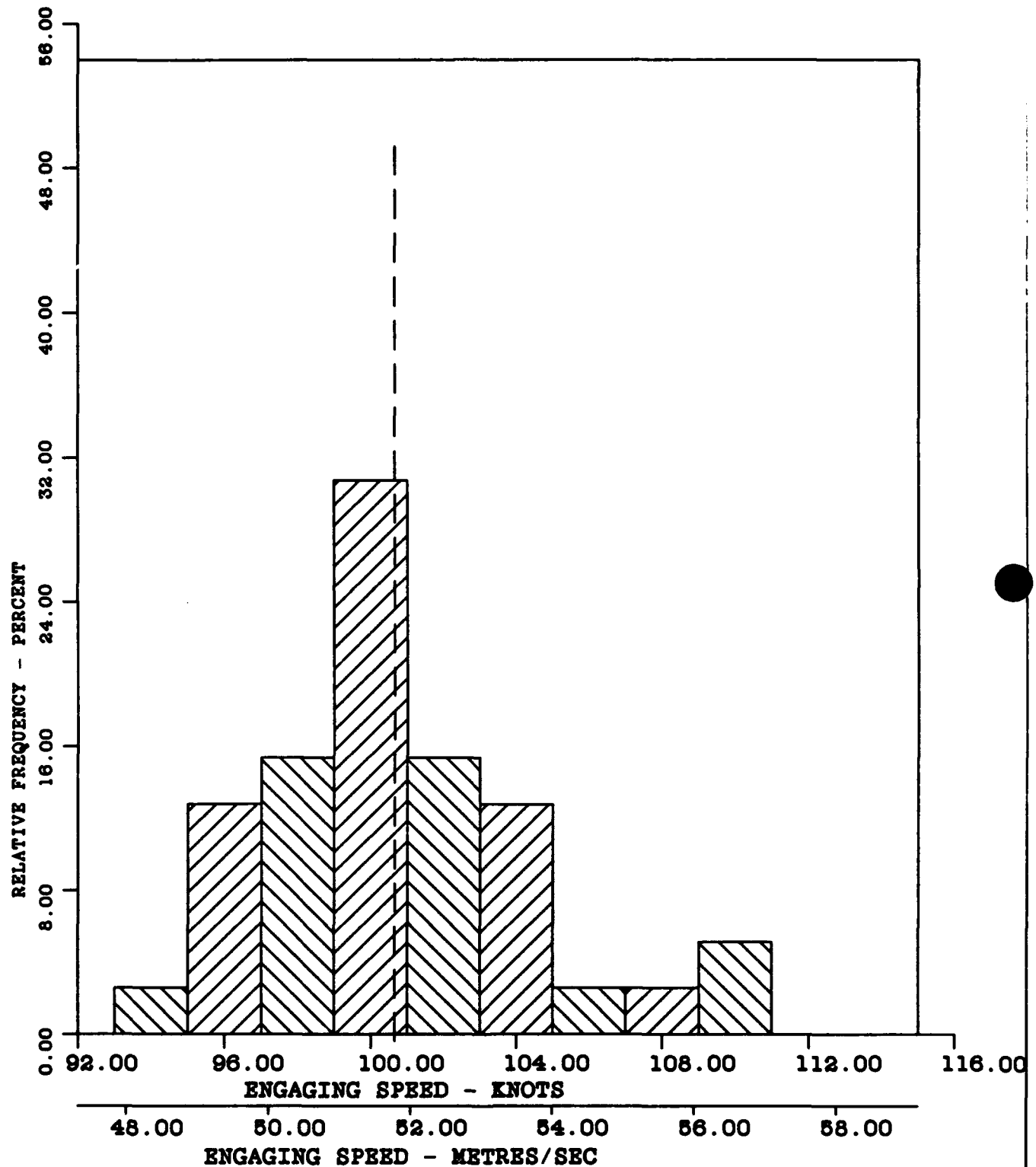


FIGURE G-33 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -100.64 KNOTS (51.77 METRES/SEC)

A3-.64

S-3.64 KNOTS (1.87 METRES/SEC)

A4-3.44

CURVE FITTED - NORMAL

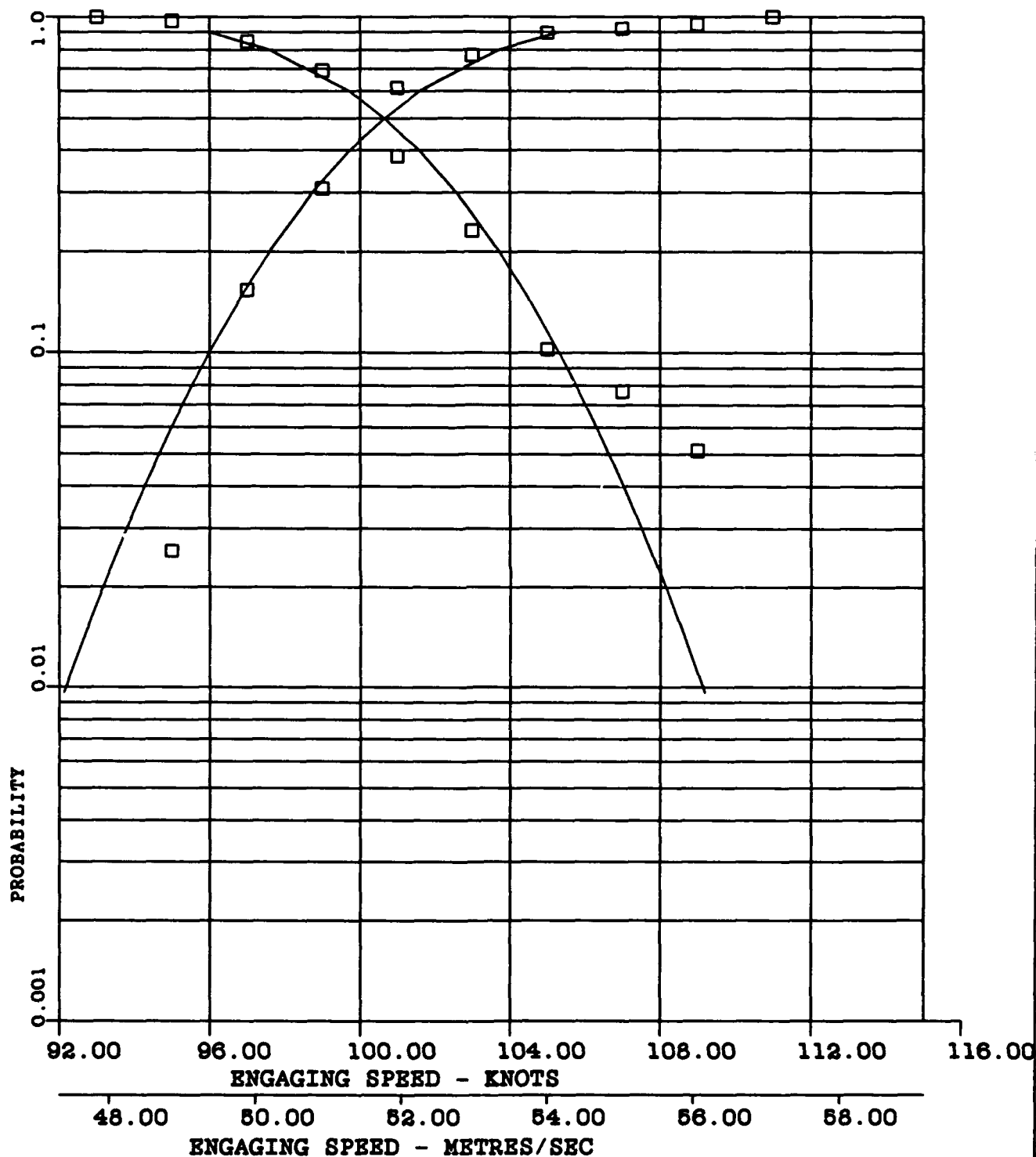


FIGURE G-34 PROBABILITY DISTRIBUTION OF ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -110.85 KNOTS (57.02 METRES/SEC)

A3--2.14

S-1.91 KNOTS (.98 METRES/SEC)

A4-9.66

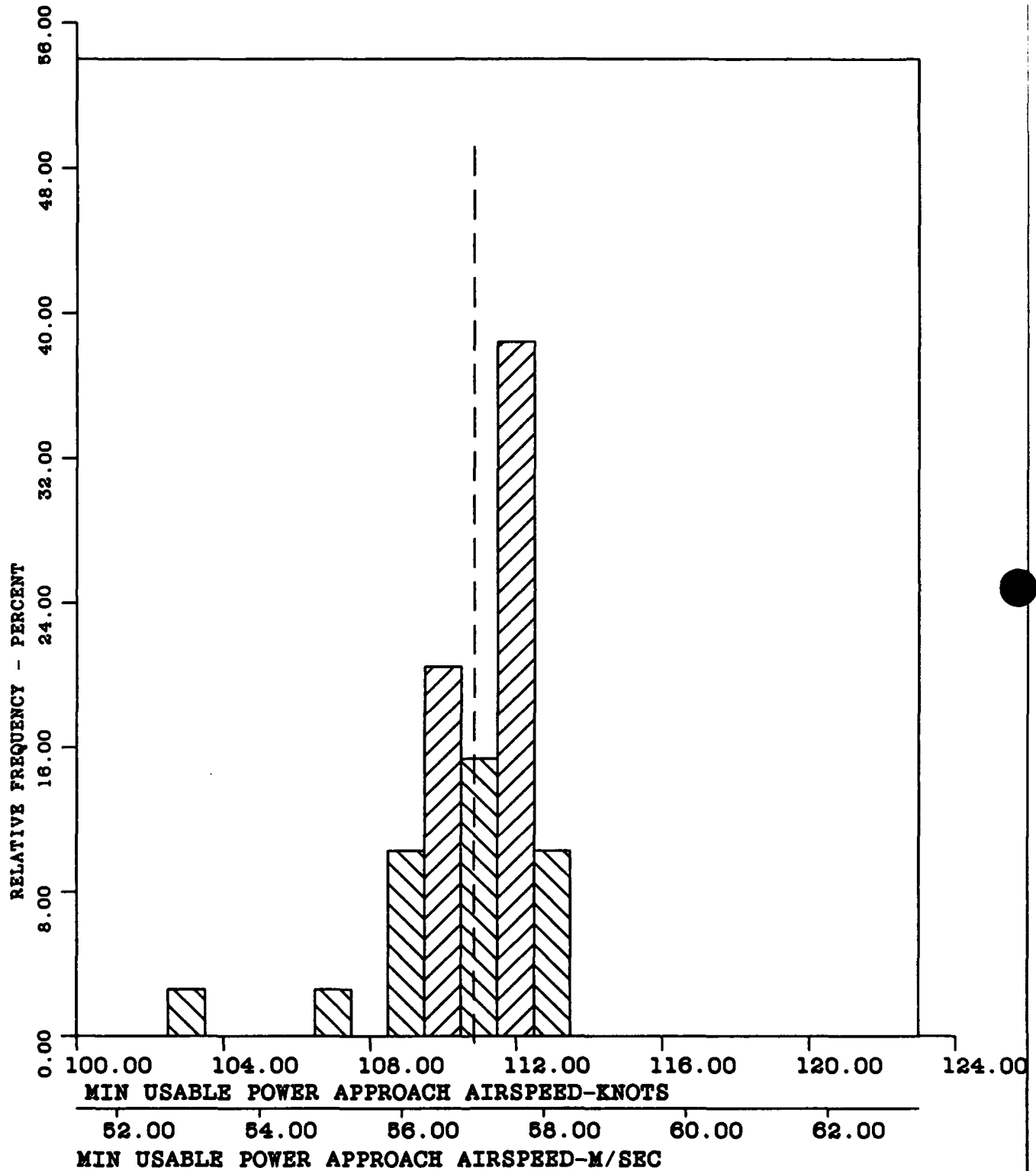


FIGURE G-35 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -1.14

A3-.22

S-.03

A4-2.43

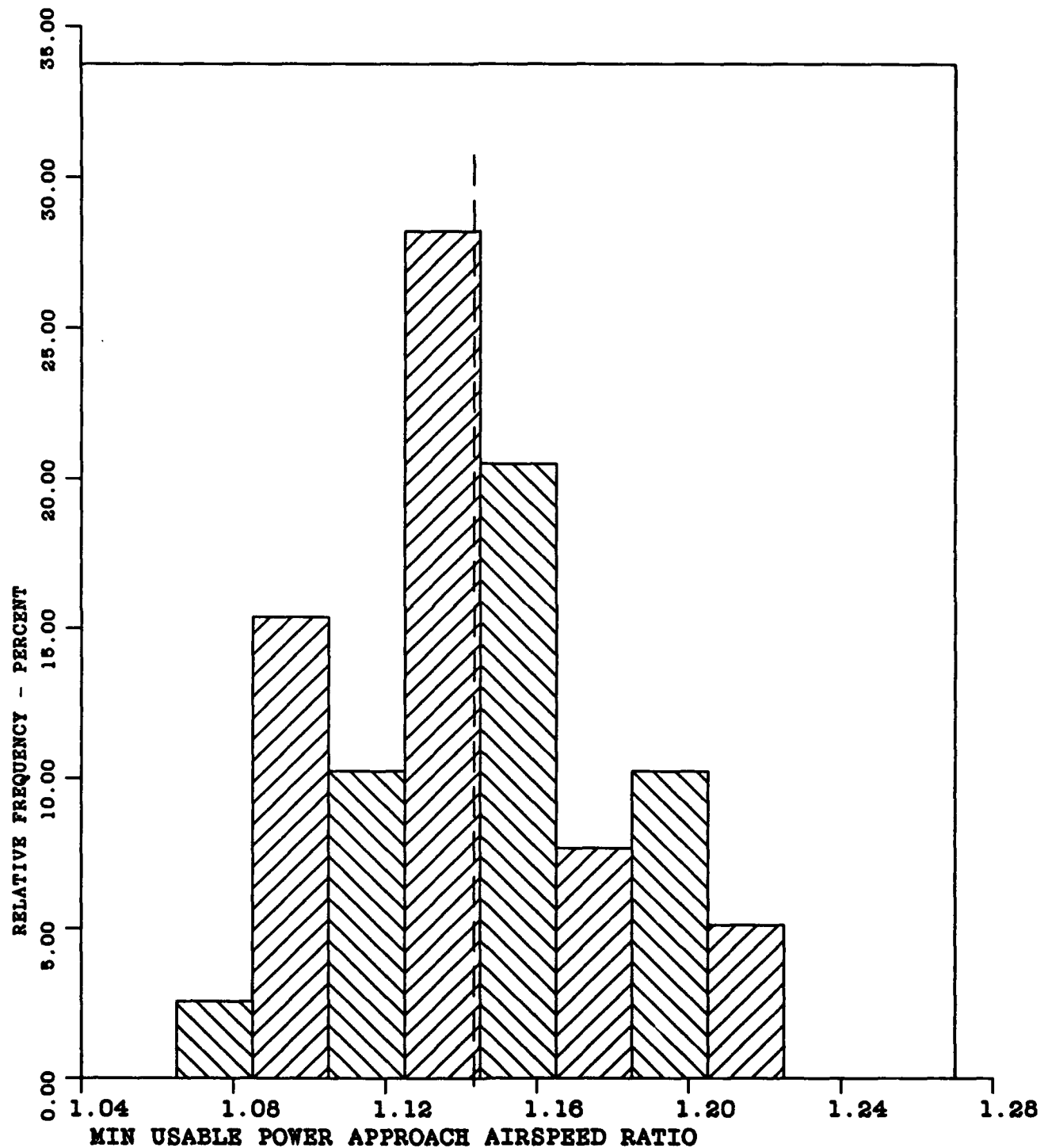


FIGURE G-36 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -.39 DEGREES (-.006 RADIANS)

A3--.63

S-.69 DEGREES (.012 RADIANS)

A4-6.97

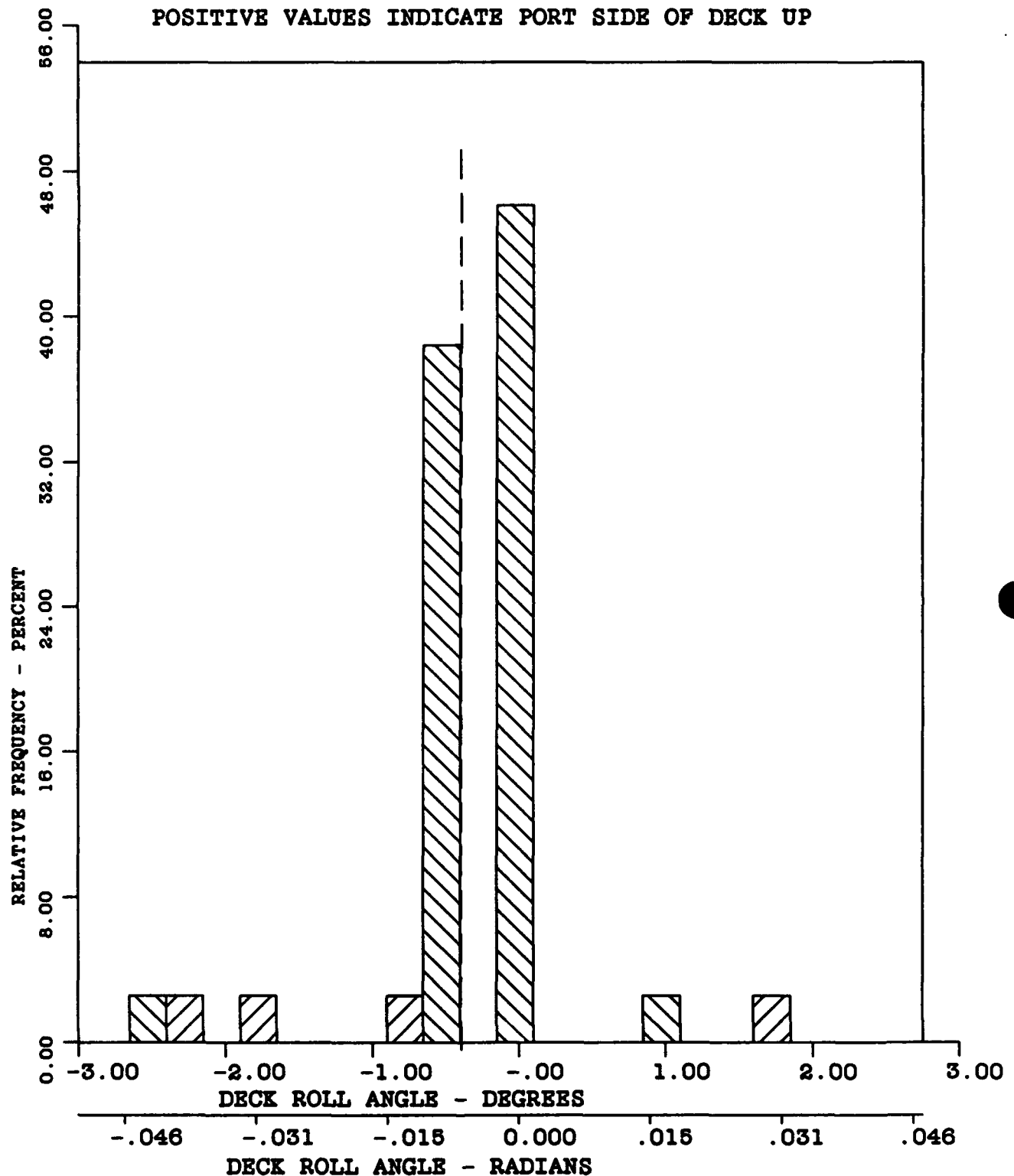


FIGURE G-37 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$  = -.39 DEGREES (-.006 RADIANS)

A3 = -.63

S = .69 DEGREES (.012 RADIANS)

A4 = 6.97

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

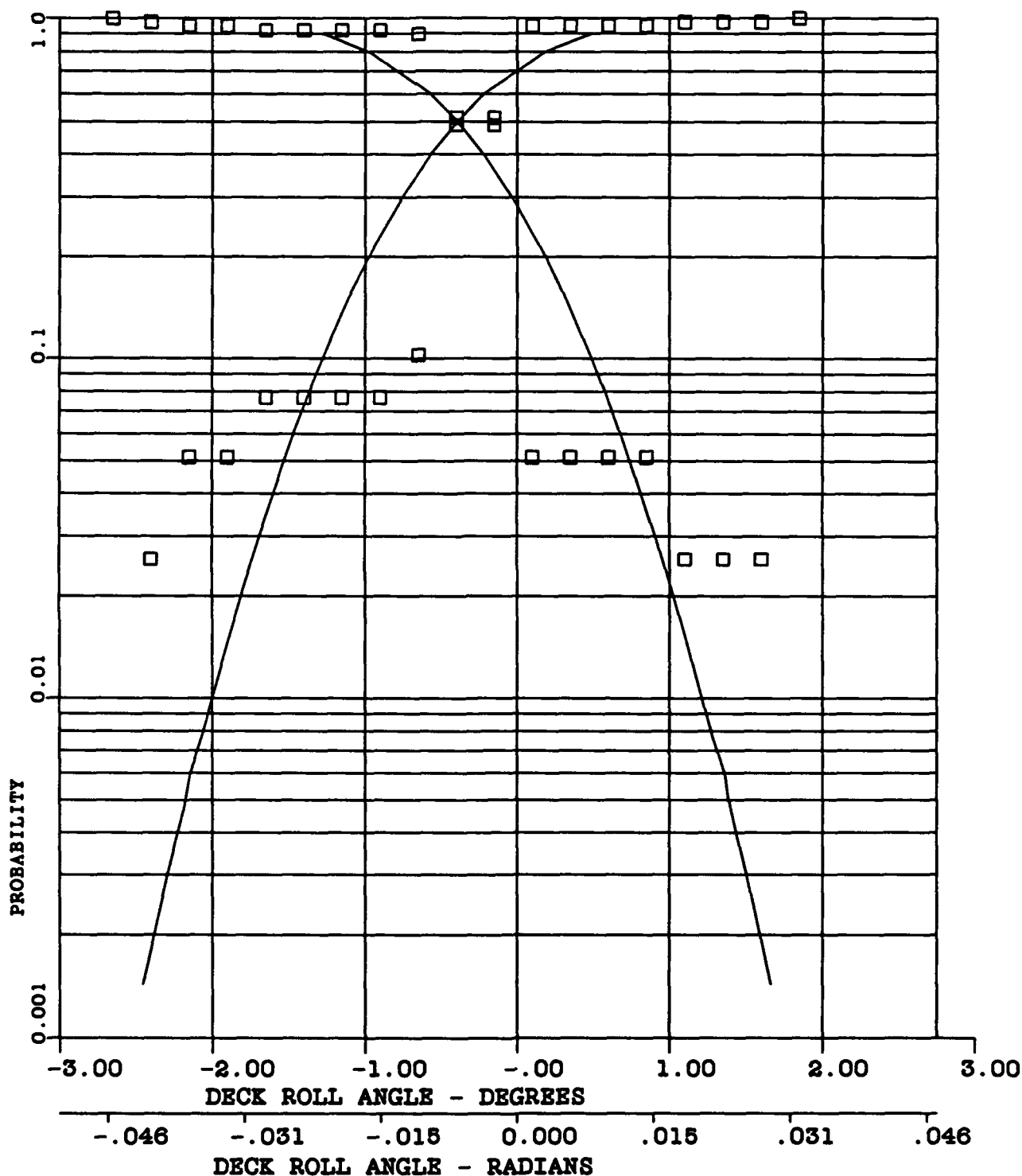


FIGURE G-38 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-39  $\bar{X}$  = -.16 DEGREES (-.002 RADIANS)

A3-.06

S = .31 DEGREES (.005 RADIANS)

A4-1.21

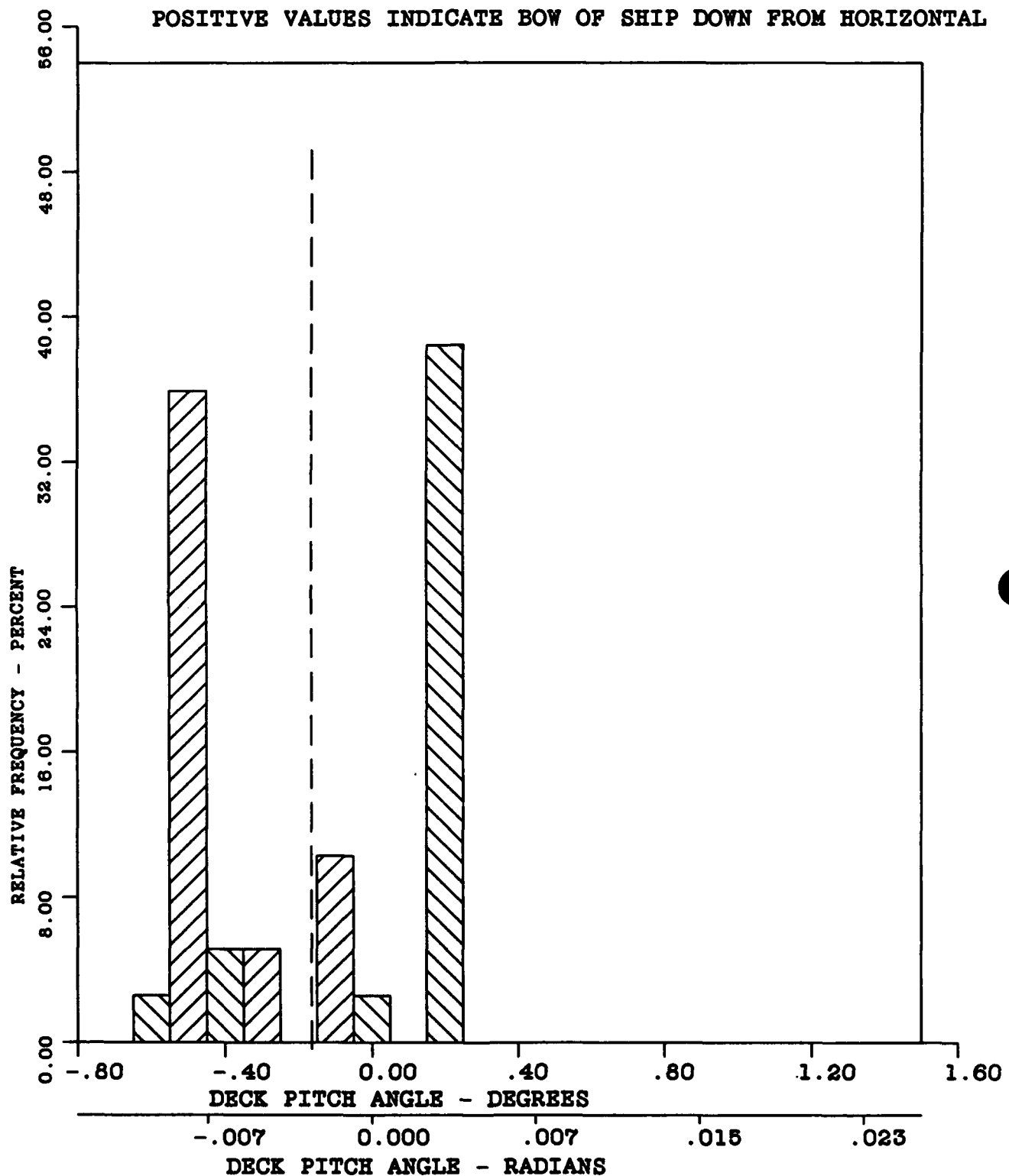


FIGURE G-39 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$  = -.16 DEGREES (-.002 RADIANS)

A3 = .06

S = .31 DEGREES (.005 RADIANS)

A4 = 1.21

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

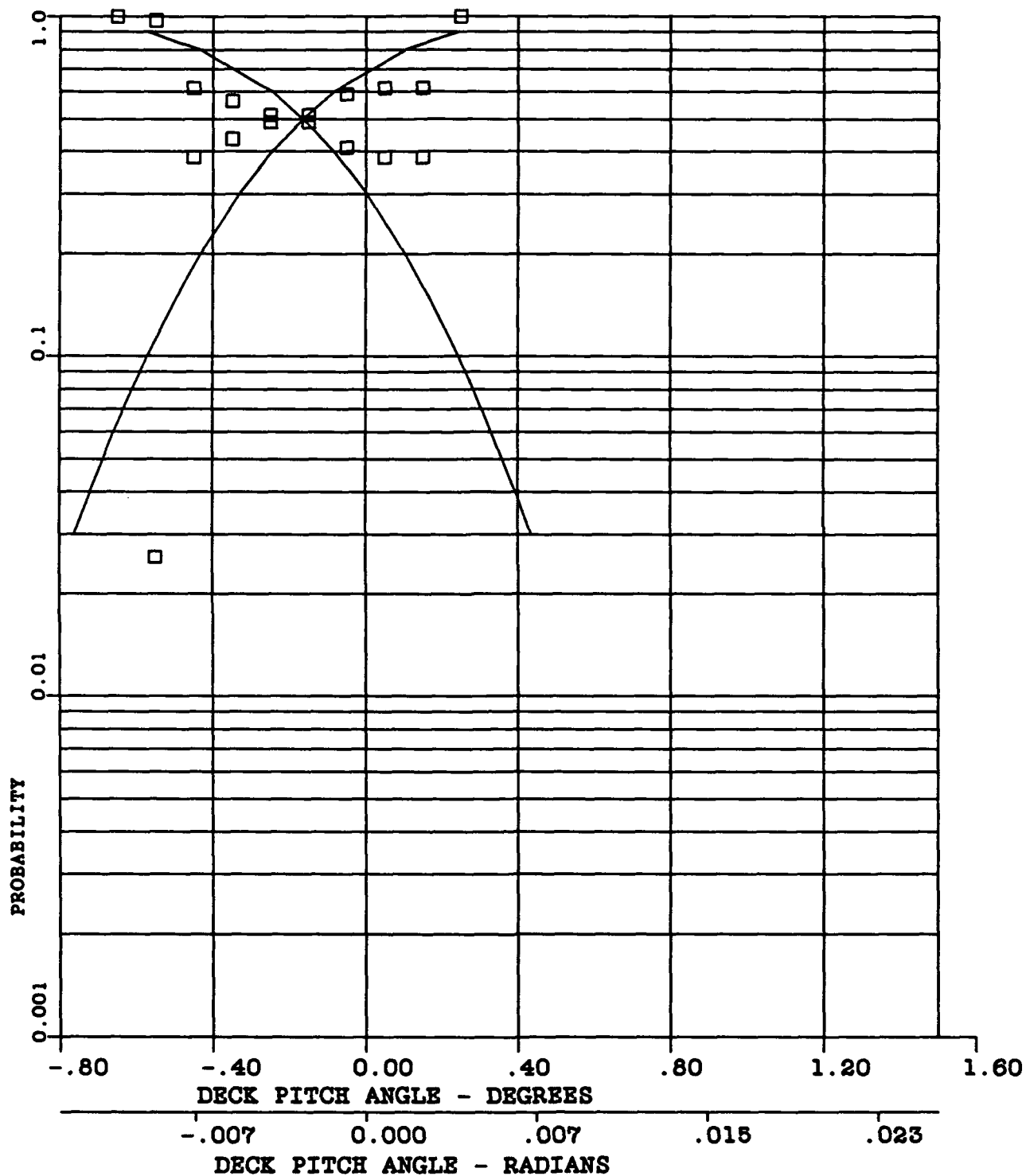


FIGURE G-40 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -34146.26 POUNDS (15488.74 KILOGRAMS)

A3--2.03

S-1160.65 POUNDS (526.47 KILOGRAMS)

A4-9.07

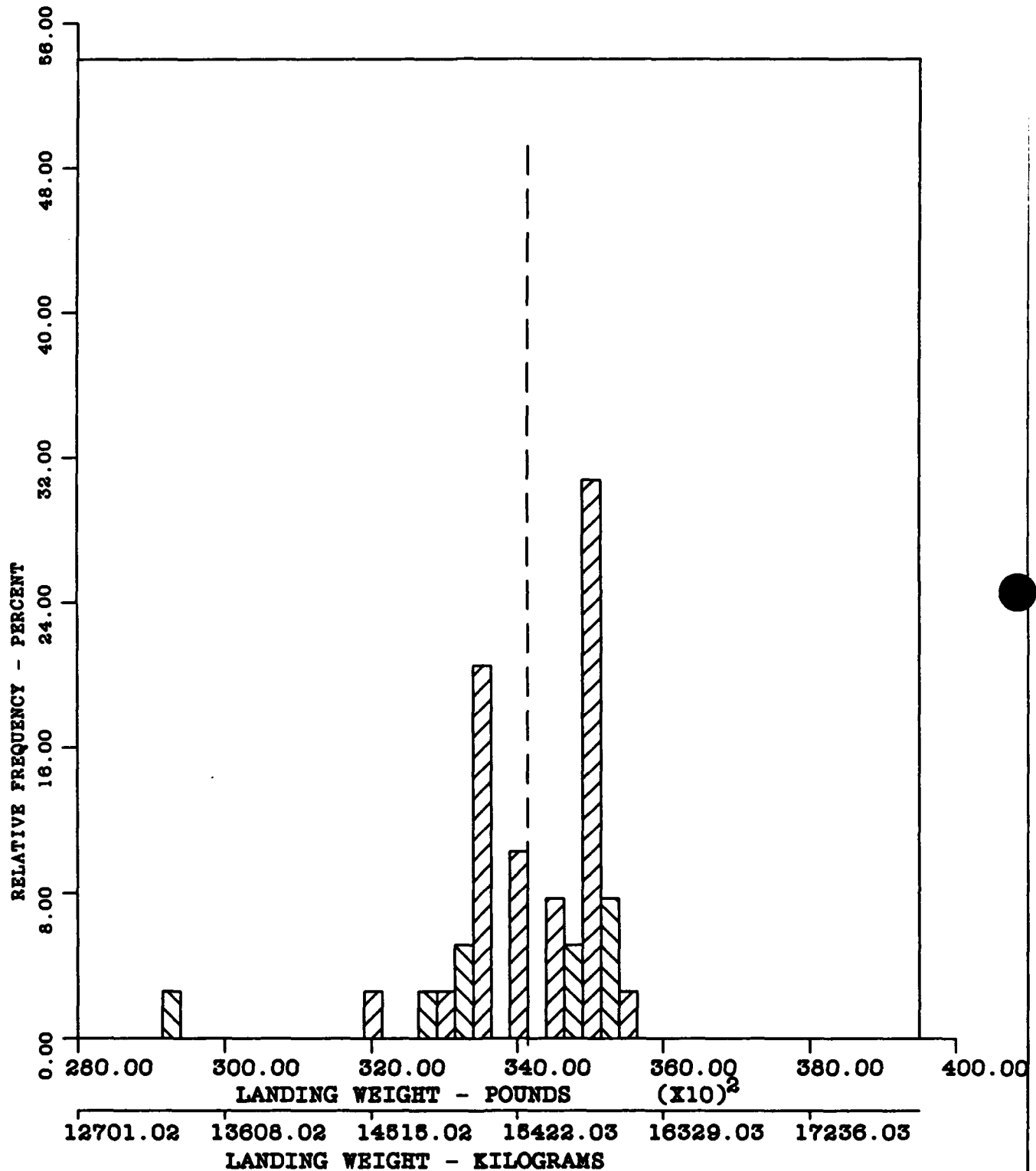


FIGURE G-41 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -.85 DEG/SEC (.014 RAD/SEC)

A3-.17

S-4.61 DEG/SEC (.080 RAD/SEC)

A4-3.99

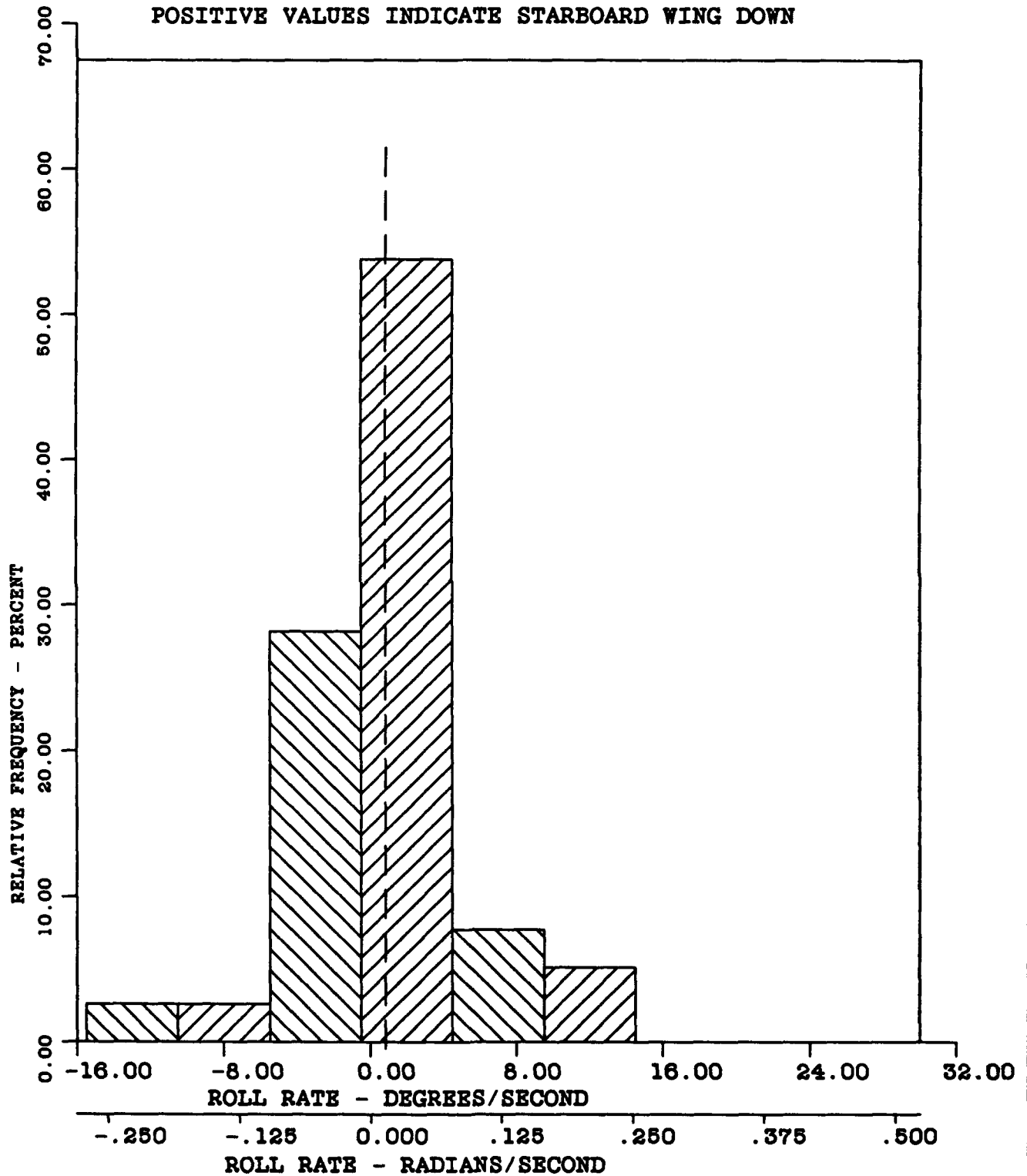


FIGURE G-42 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$  = -8.5 DEG/SEC (.014 RAD/SEC)

A3 = .17

S = 4.61 DEG/SEC (.080 RAD/SEC)

A4 = 3.99

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

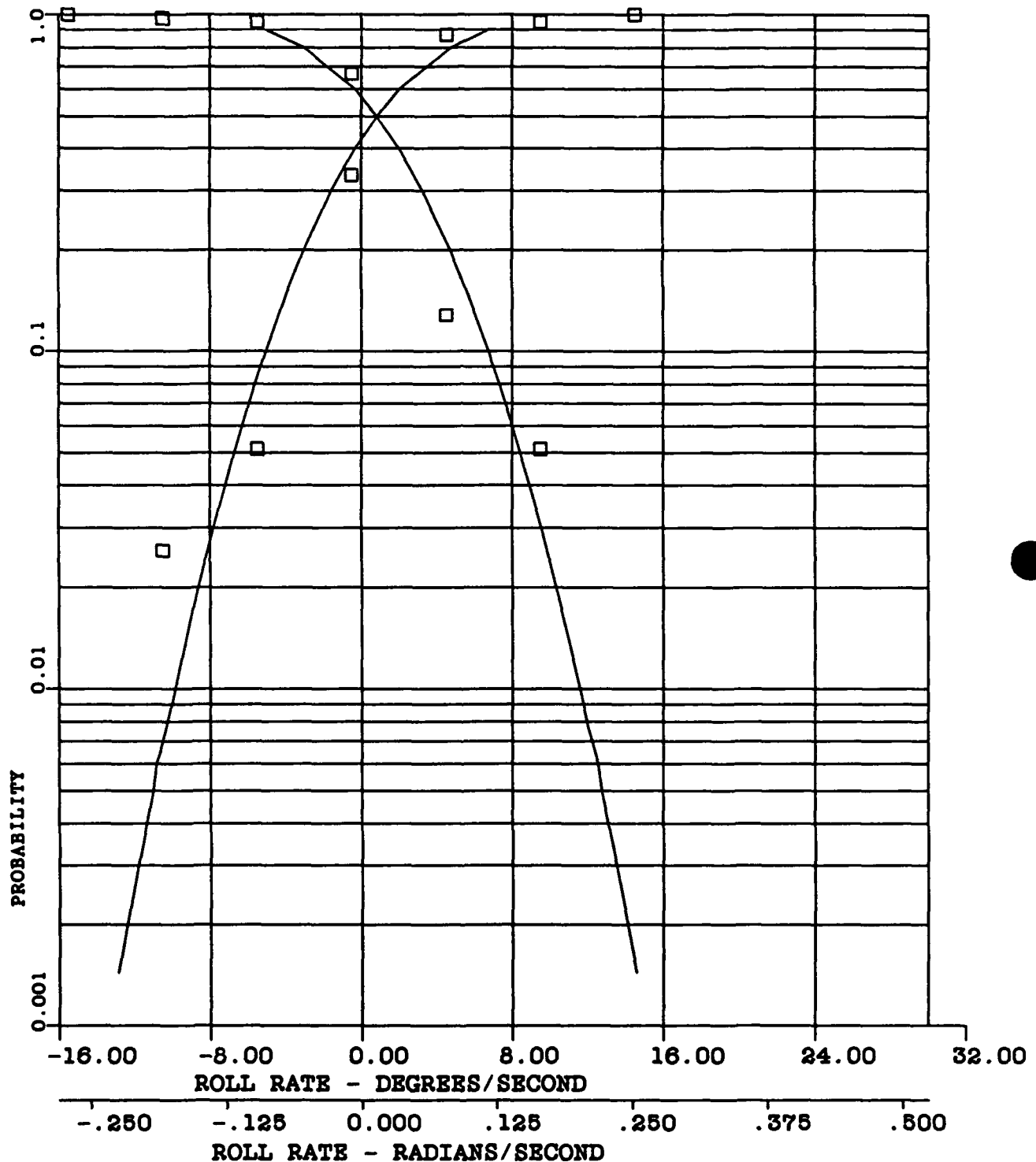


FIGURE G-43 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -.74 DEG/SEC (.013 RAD/SEC)

A3-.26

S-2.82 DEG/SEC (.049 RAD/SEC)

A4-3.51

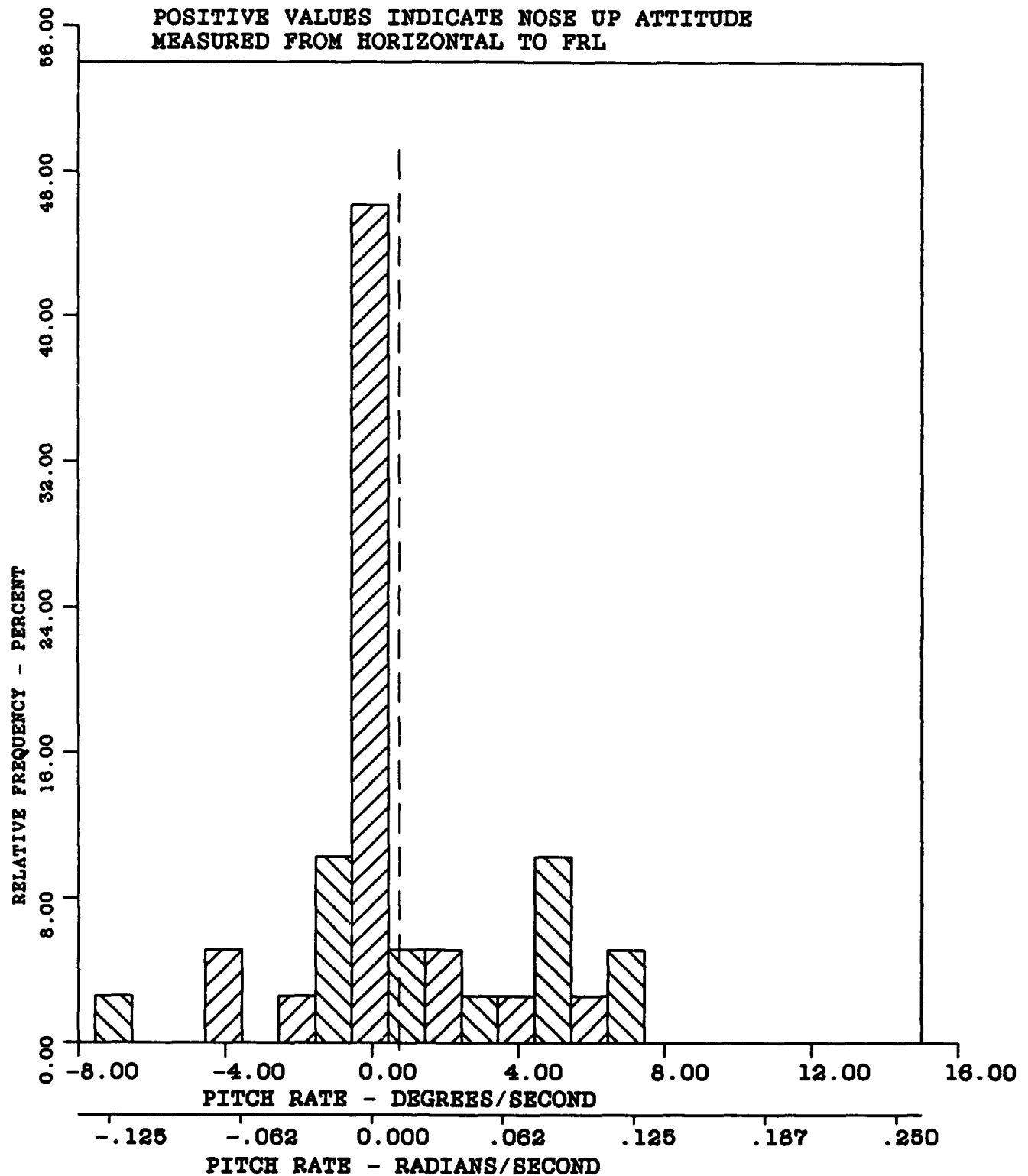


FIGURE G-44 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RAD/SEC)

N-39

 $\bar{X}$ -.74 DEG/SEC (.013 RAD/SEC)

A3-.26

S-2.82 DEG/SEC (.049 RAD/SEC)

A4-3.51

CURVE FITTED - NORMAL

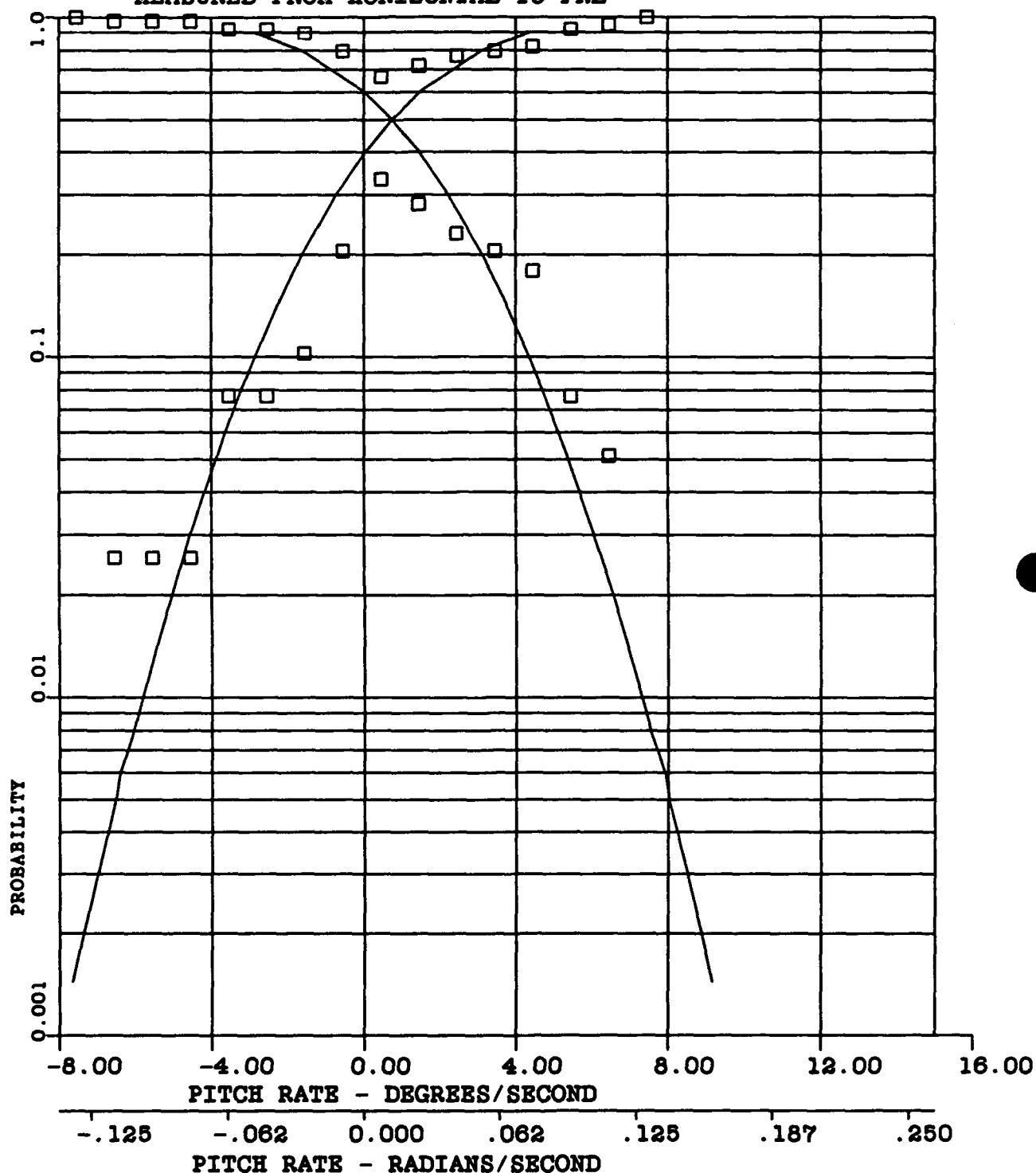
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE G-45 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$  = -2.79 DEGREES (-.048 RADIANS)

A3 = .66

S = 1.18 DEGREES (.020 RADIANS)

A4 = 3.12

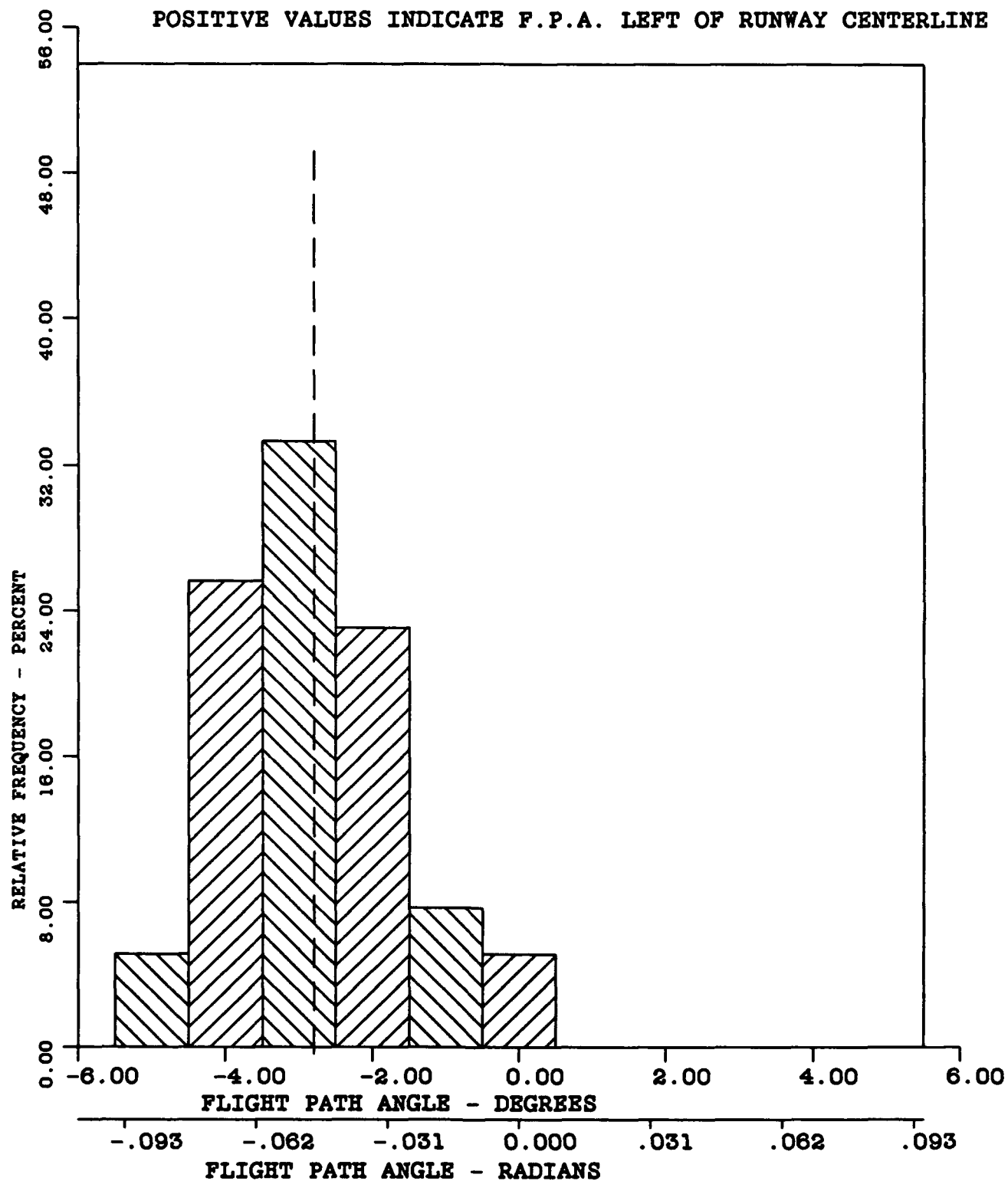


FIGURE G-46 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN



MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=39

 $\bar{X}$ =-2.79 DEGREES (-.048 RADIANS)

A3=.66

S=1.18 DEGREES (.020 RADIANS)

A4=3.12

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

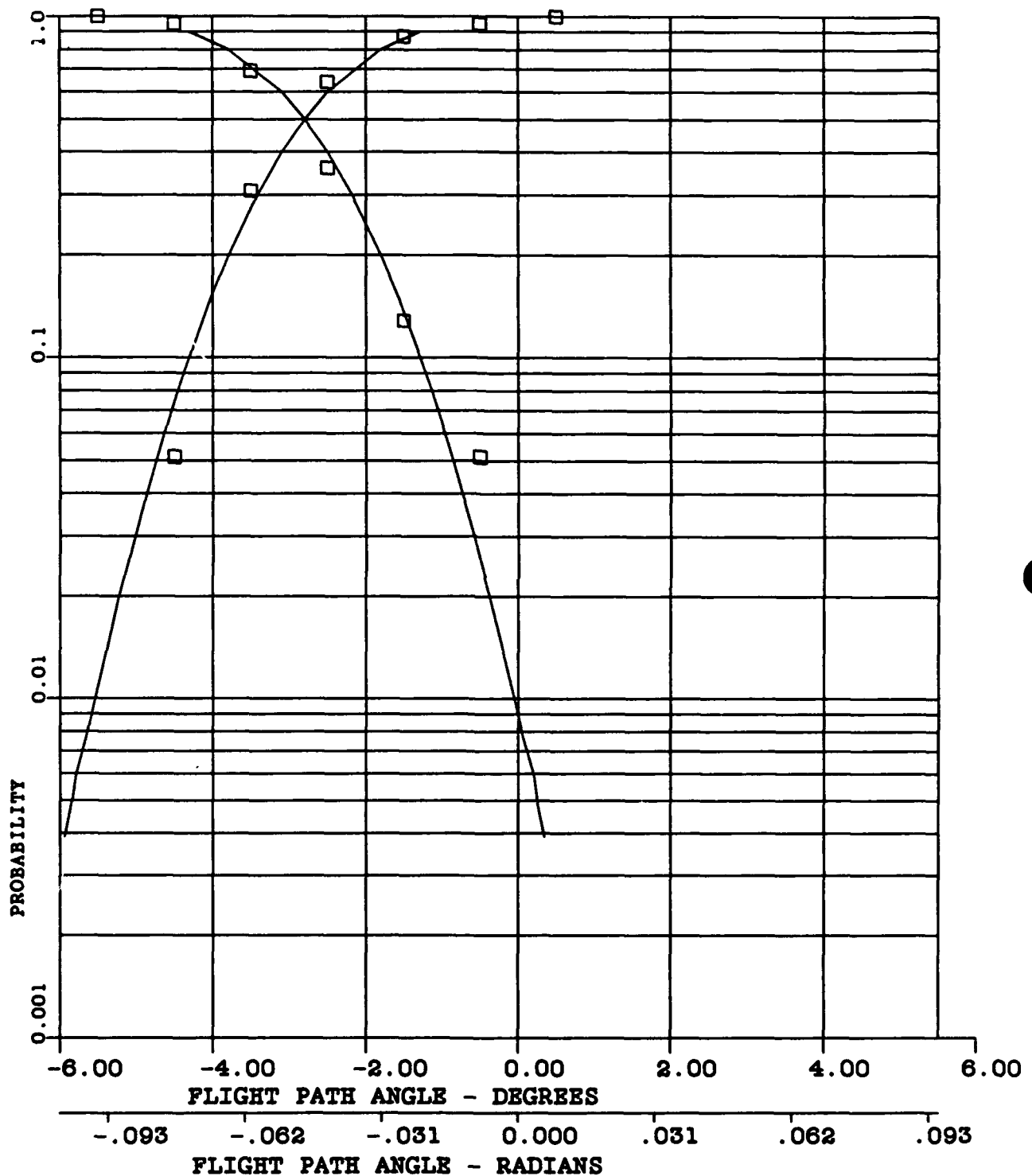


FIGURE G-47 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -1.33 DEGREES (.023 RADIANS)

A3--.61

S-4.18 DEGREES (.073 RADIANS)

A4-2.53

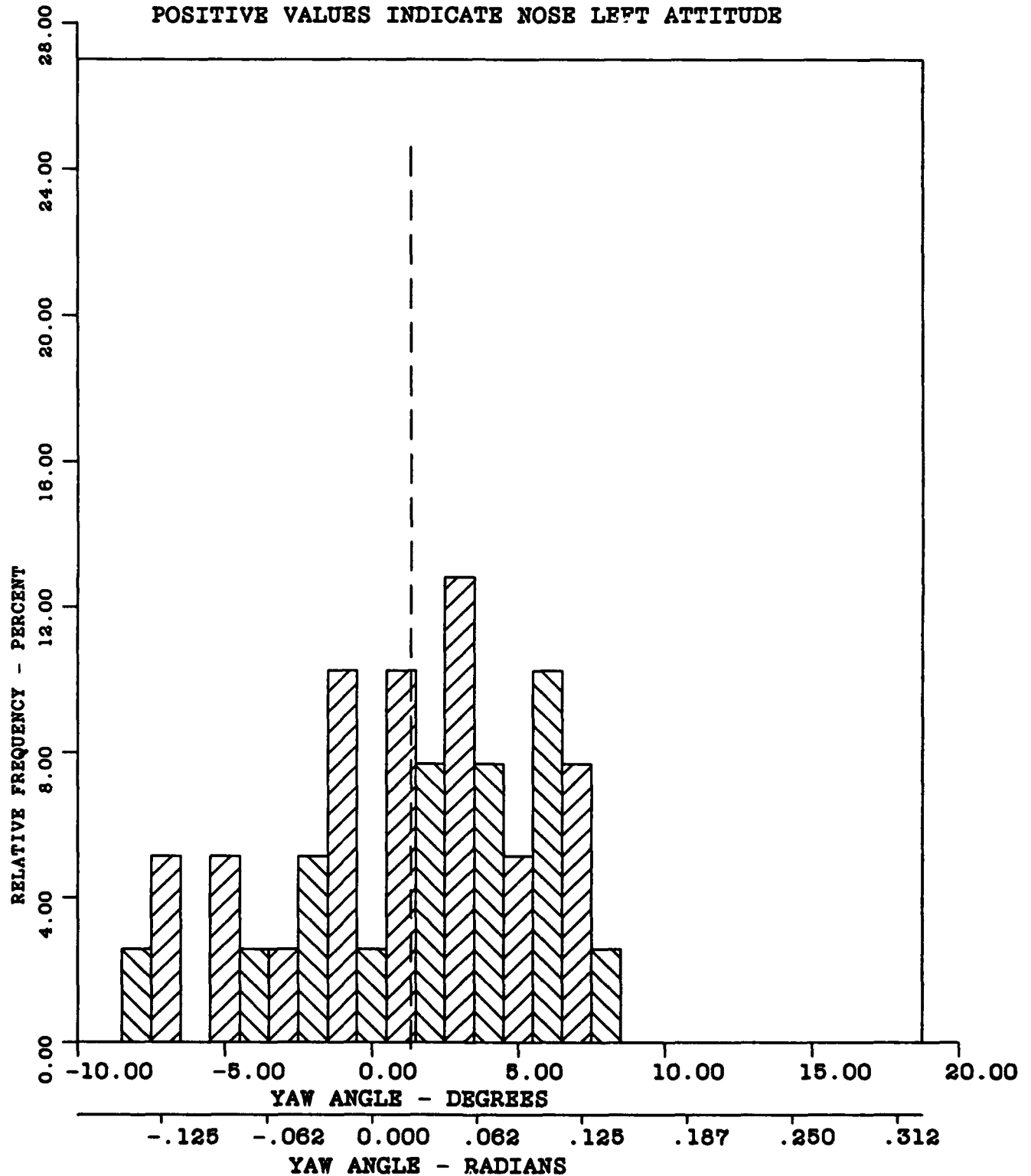


FIGURE G-48 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL A-6E AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-39

 $\bar{X}$ -1.33 DEGREES (.023 RADIANS)

A3--.61

S-4.18 DEGREES (.073 RADIANS)

A4-2.53

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

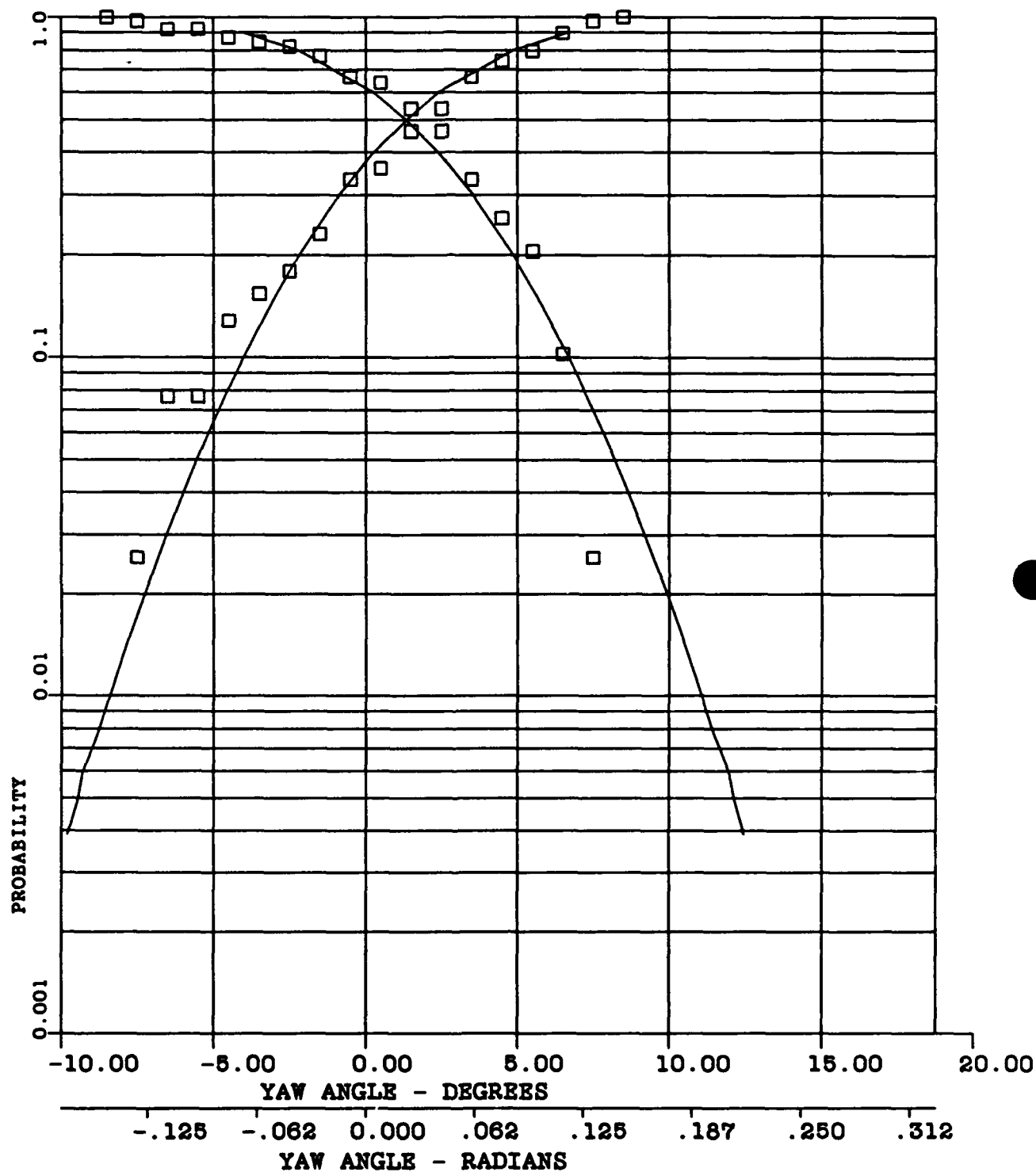


FIGURE G-49 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX H**

## **A-7E AIRCRAFT DAY CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

## Appendix H:

Frequency and Probability Distributions,  
A-7E Aircraft, Day Landings

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MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -25.65 KNOTS (13.19 METRES/SEC)

A3-1.33

S-1.92 KNOTS (.99 METRES/SEC)

A4-5.89

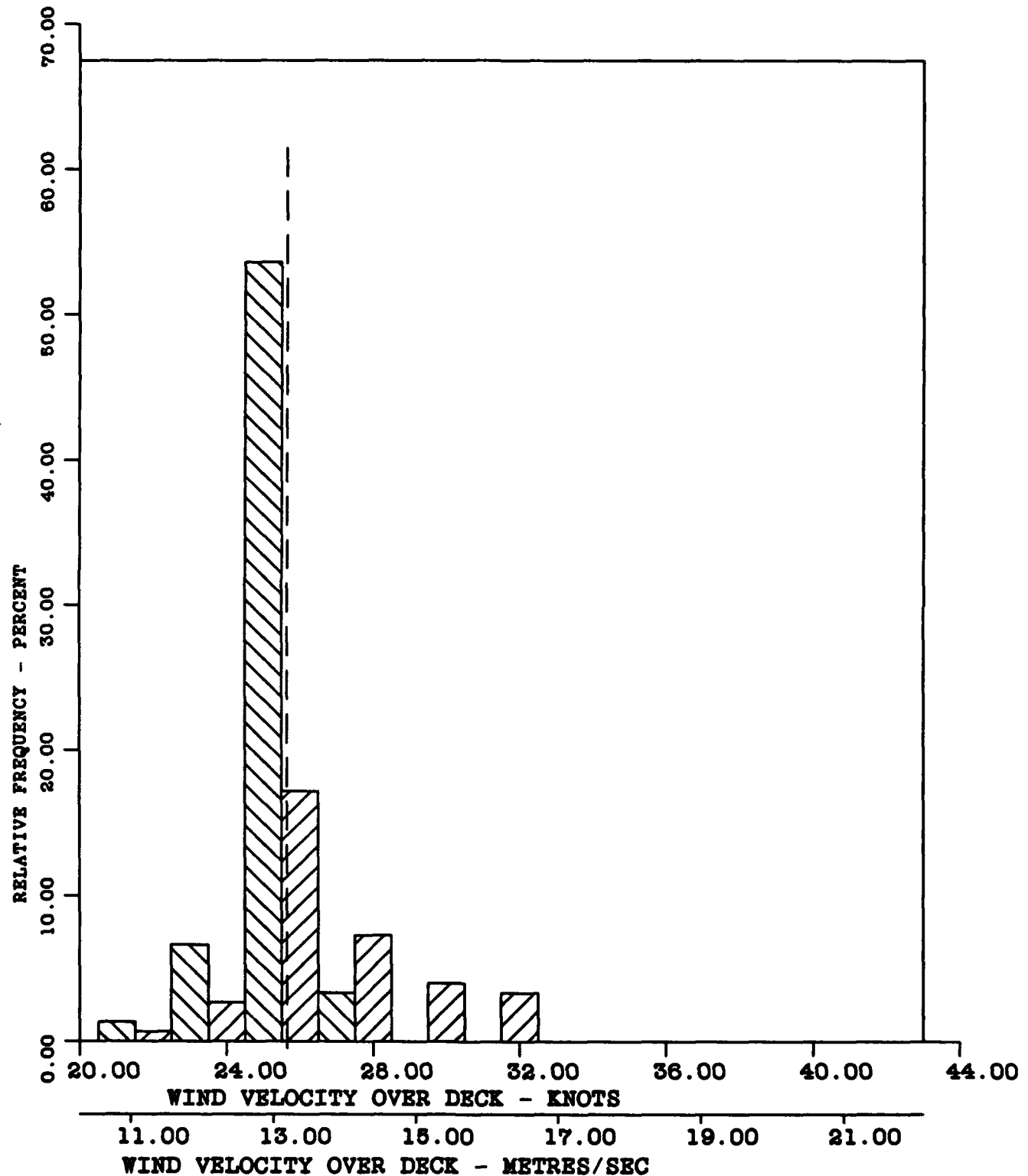


FIGURE H-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -25.65 KNOTS (13.19 METRES/SEC)

A3-1.33

S-1.92 KNOTS (.99 METRES/SEC)

A4-5.89

CURVE FITTED - PEARSON TYPE III

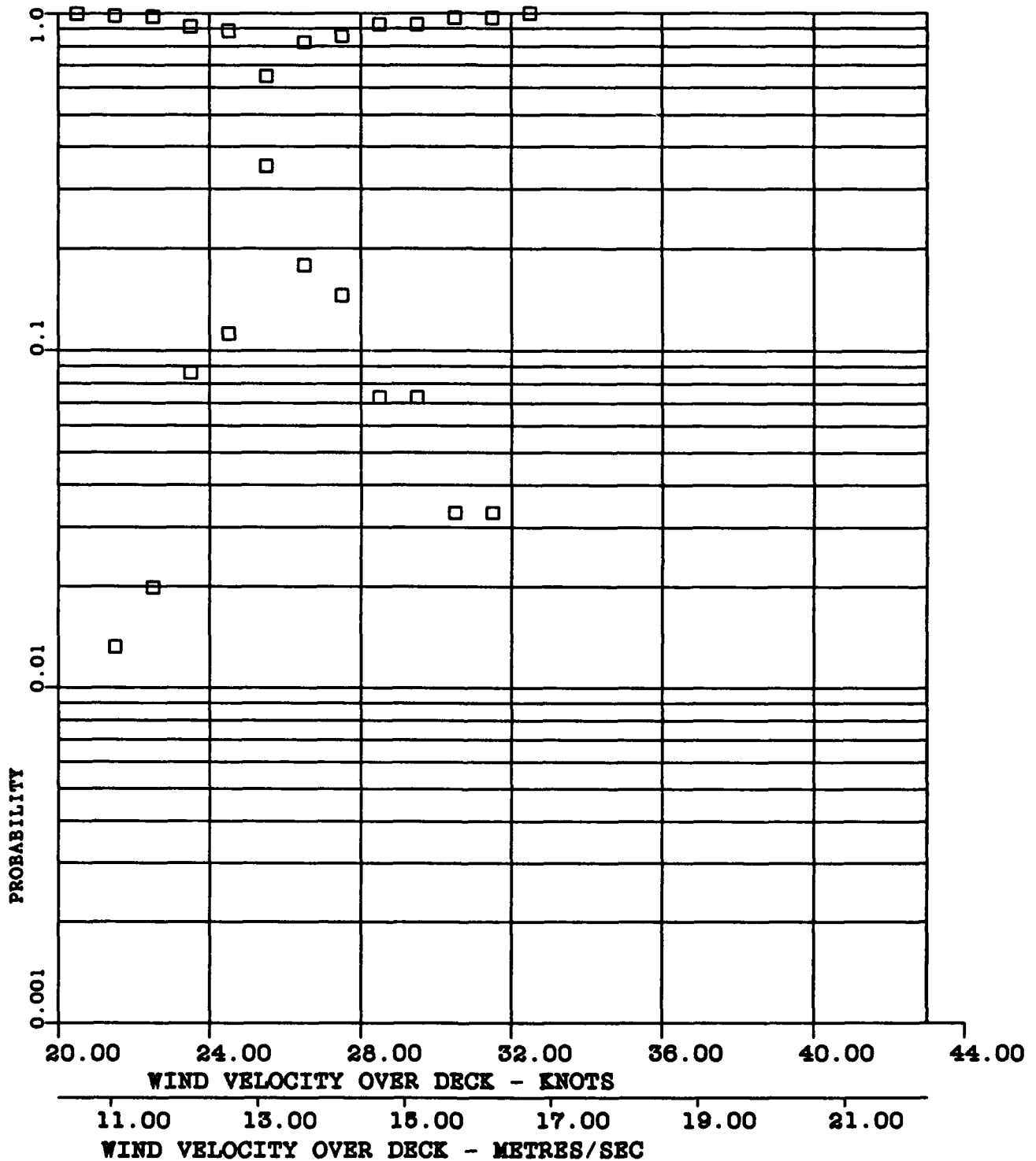


FIGURE H-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -144.86 KNOTS (74.51 METRES/SEC)

S-5.29 KNOTS (2.72 METRES/SEC)

A3-.08

A4-3.30

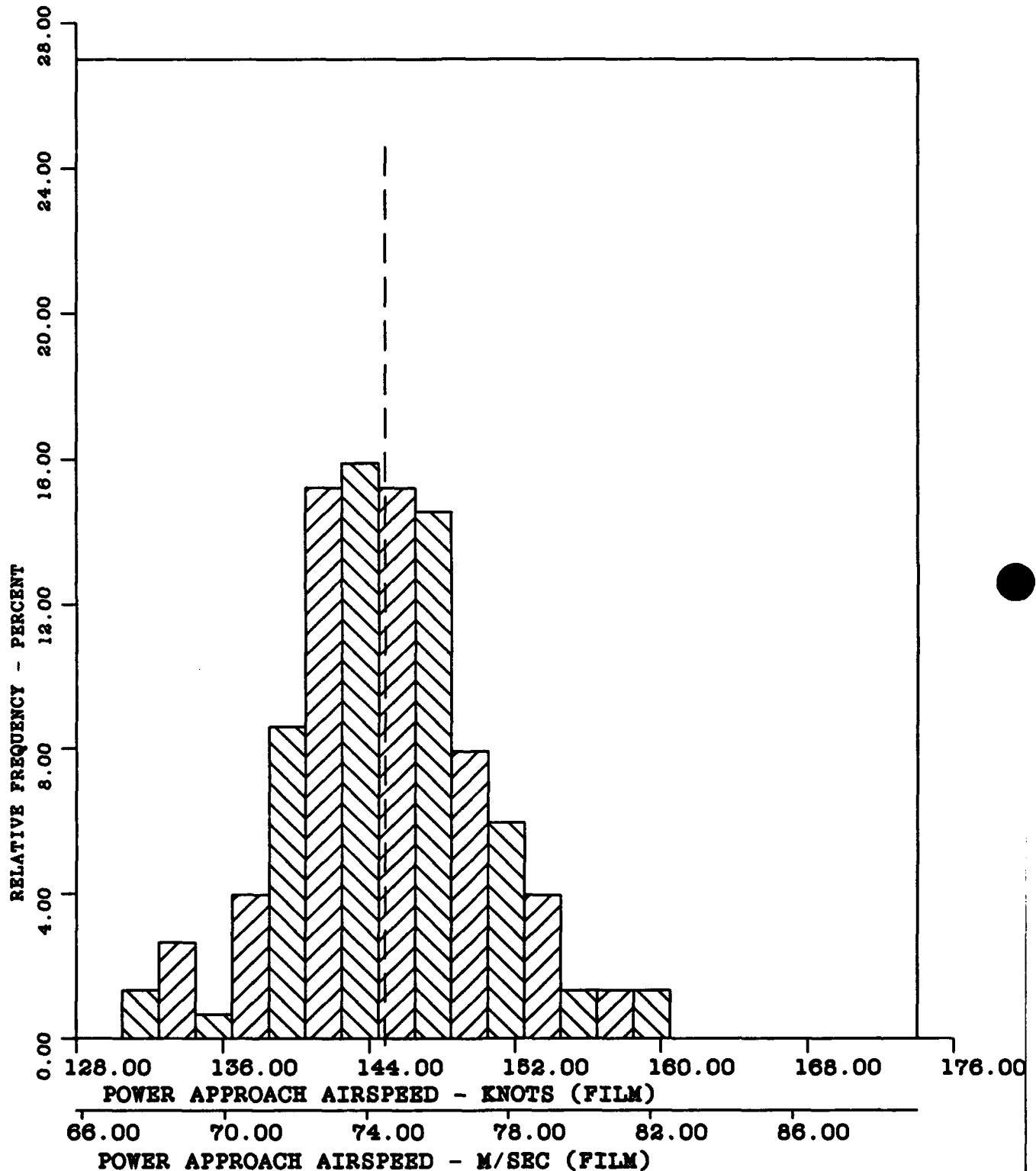


FIGURE H-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-66)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -144.86 KNOTS (74.51 METRES/SEC)

A3-.08

S-5.29 KNOTS (2.72 METRES/SEC)

A4-3.30

CURVE FITTED - NORMAL

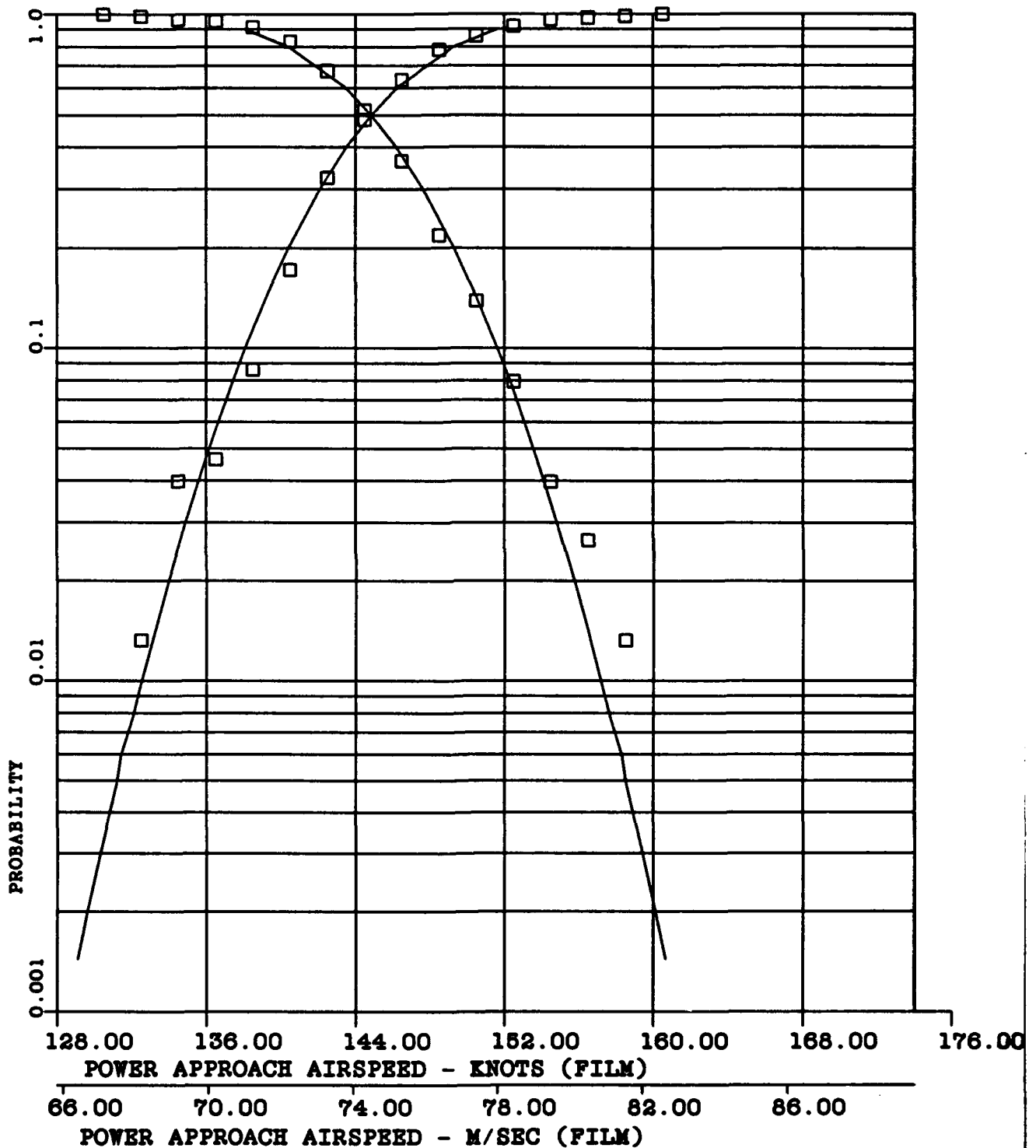


FIGURE H-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-147

 $\bar{X}$ -16.25 FEET (4.95 METRES)

A3-.01

S-2.48 FEET (.75 METRES)

A4-3.43

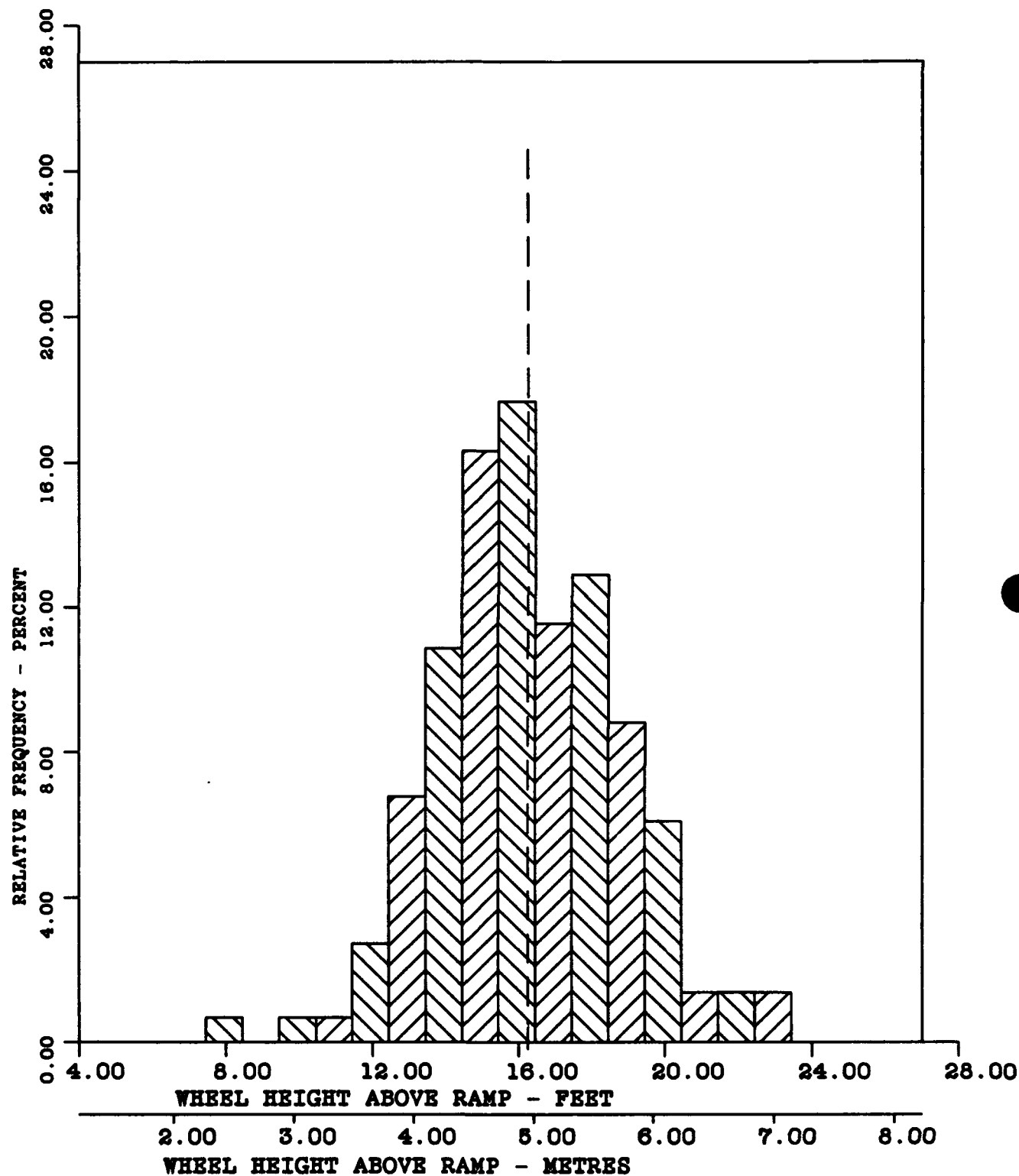


FIGURE H-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-147

 $\bar{X}$ -16.25 FEET (4.95 METRES)

A3-.01

S-2.48 FEET (.75 METRES)

A4-3.43

CURVE FITTED - NORMAL

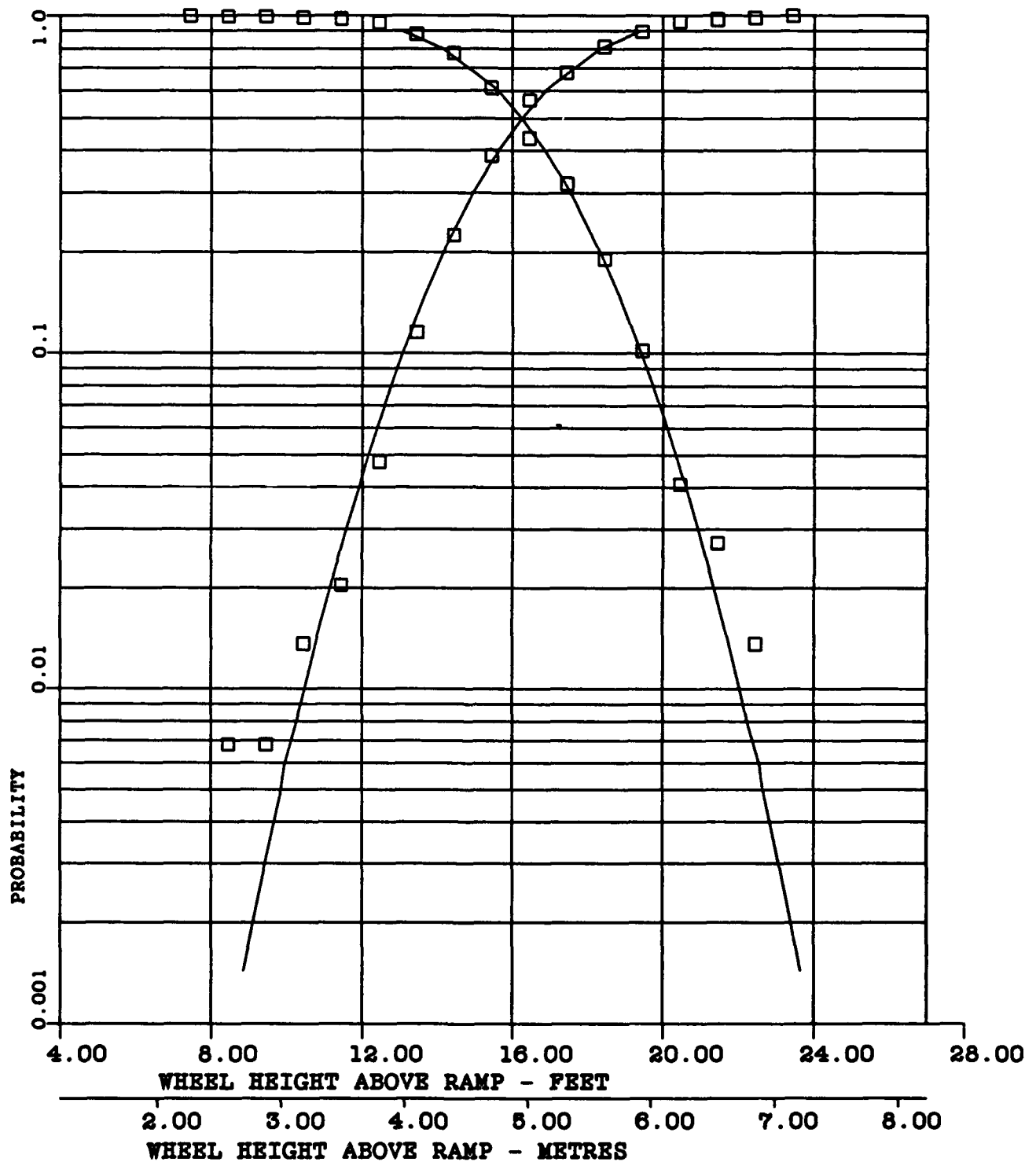


FIGURE H-6 PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -11.52 FEET/SEC (3.51 METRES/SEC)

A3--.73

S-2.00 FEET/SEC (.61 METRES/SEC)

A4-4.56

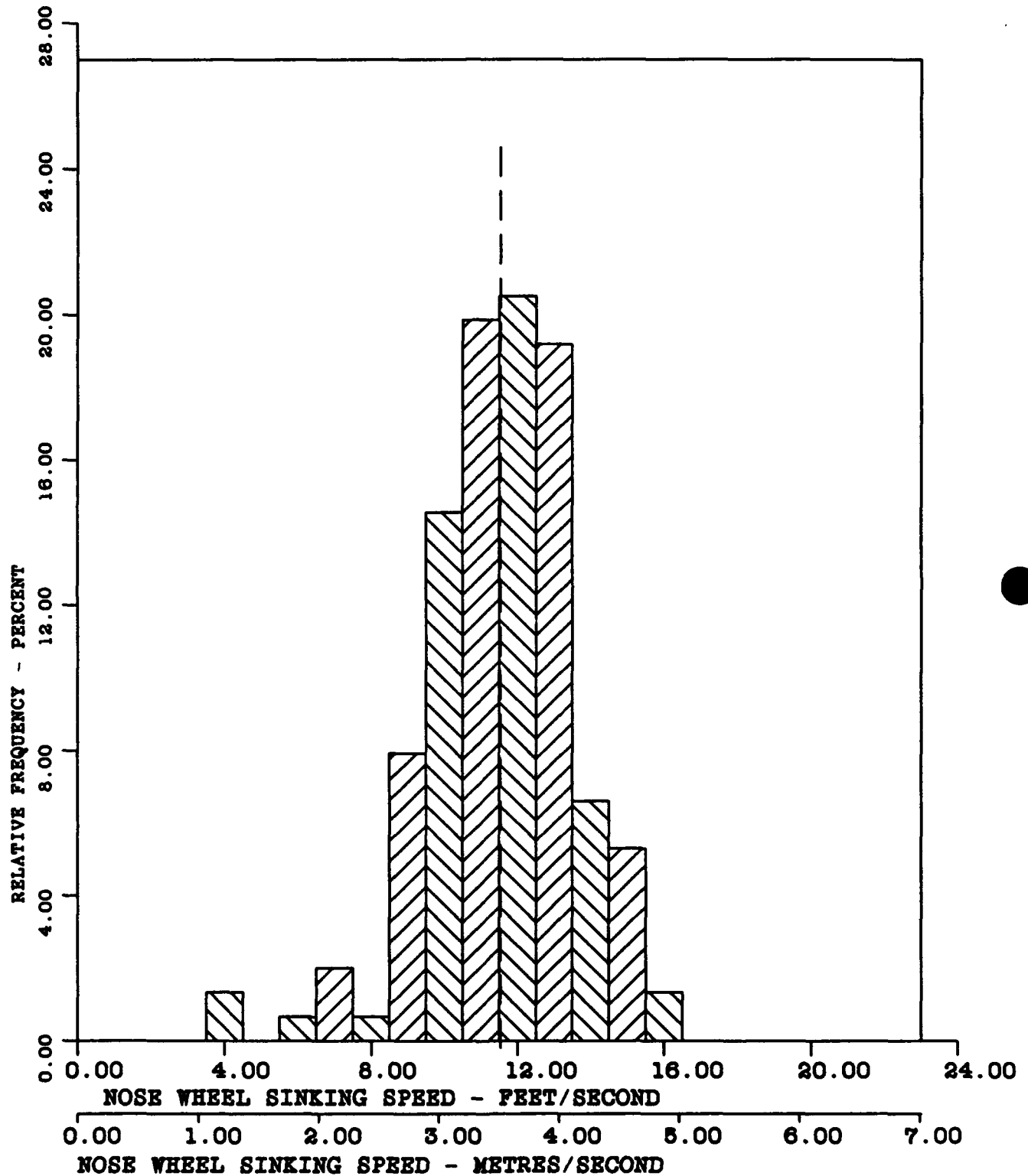


FIGURE H-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ =11.52 FEET/SEC (3.51 METRES/SEC)

A3--.73

S=2.00 FEET/SEC (.61 METRES/SEC)

A4=4.56

CURVE FITTED - PEARSON TYPE III

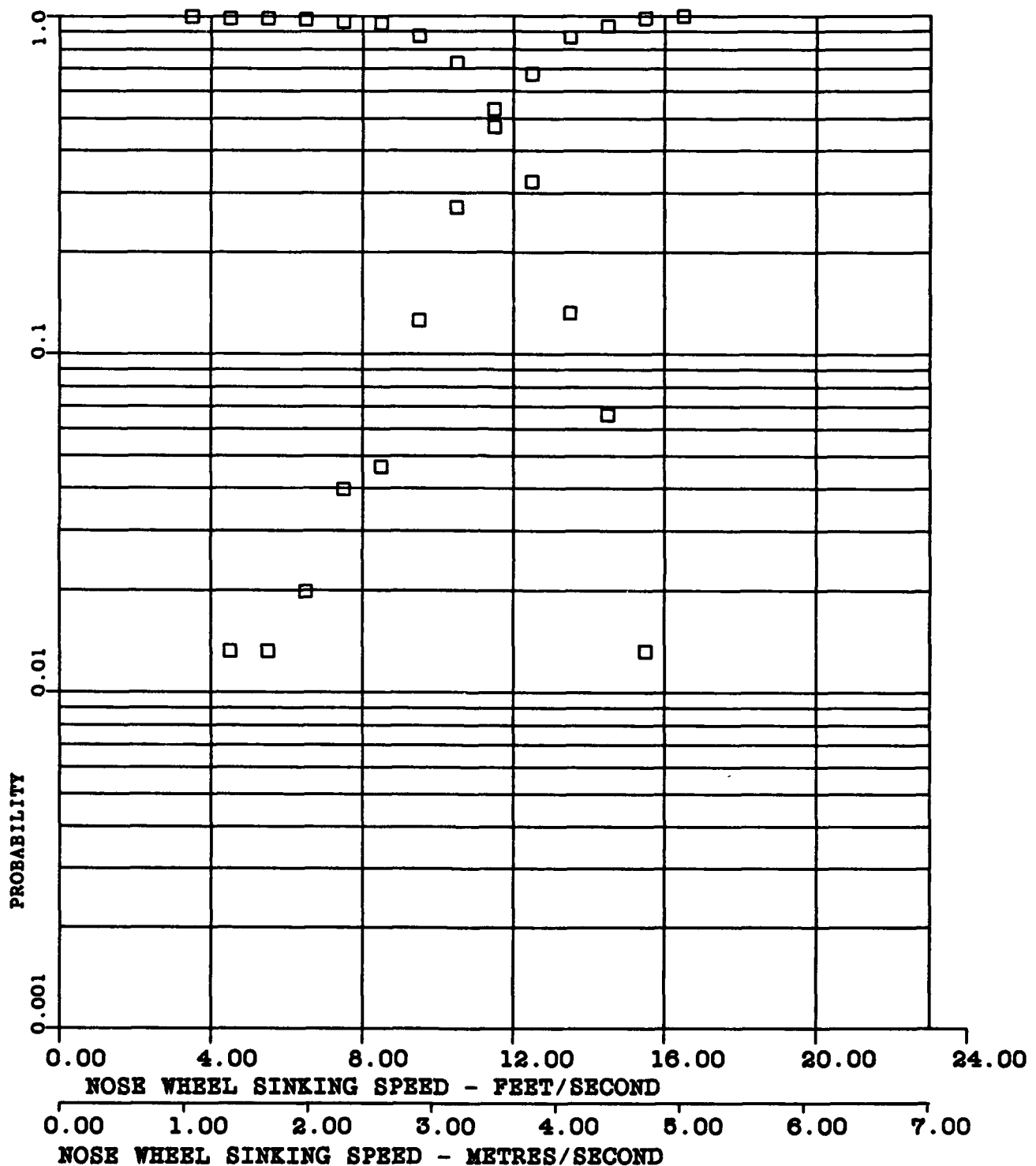


FIGURE H-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -11.62 FEET/SEC (3.54 METRES/SEC)

A3--.05

S-1.79 FEET/SEC (.54 METRES/SEC)

A4-2.63

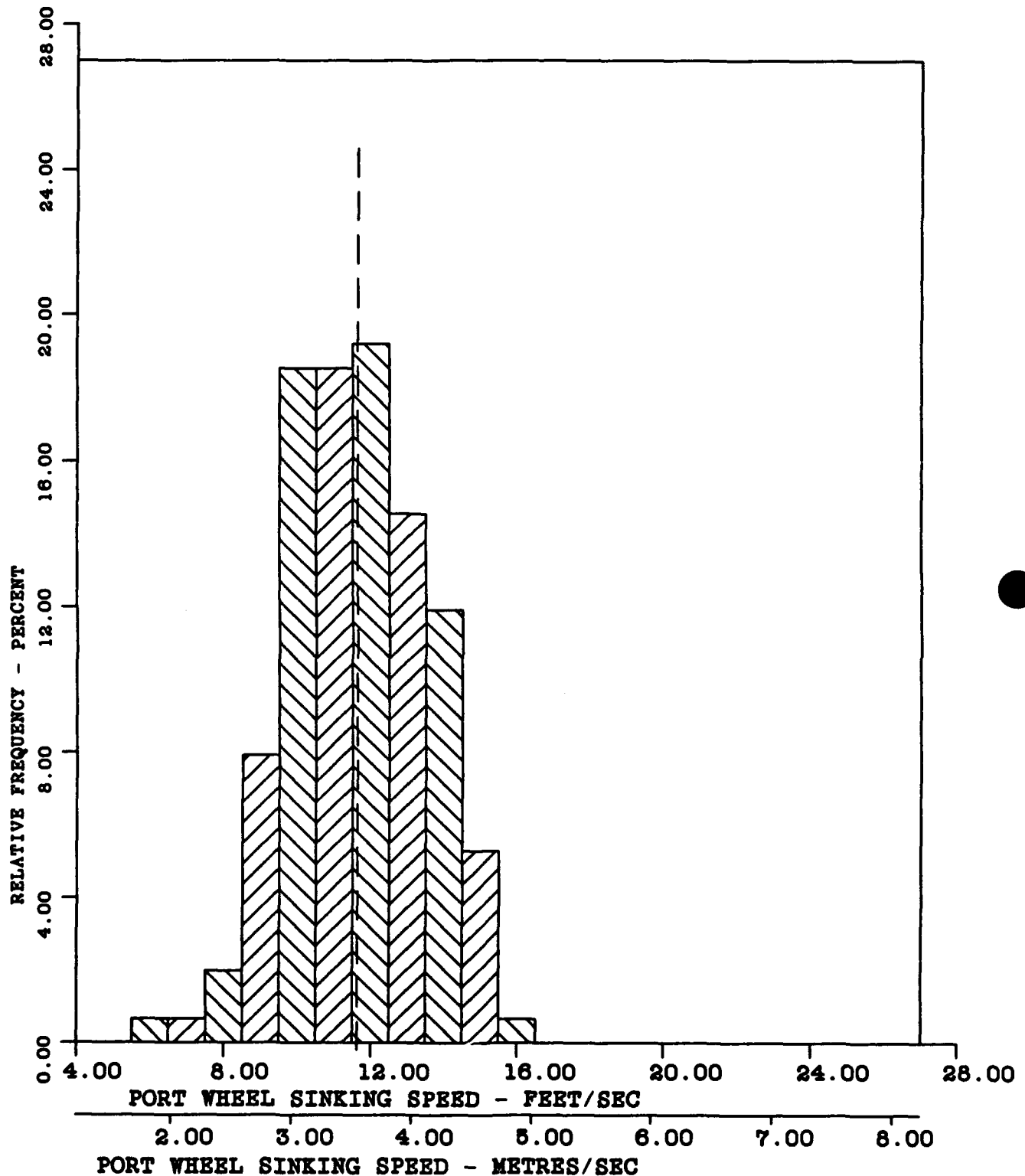


FIGURE H-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -11.62 FEET/SEC (3.54 METRES/SEC)

A3--.05

S-1.79 FEET/SEC (.54 METRES/SEC)

A4-2.63

CURVE FITTED - NORMAL

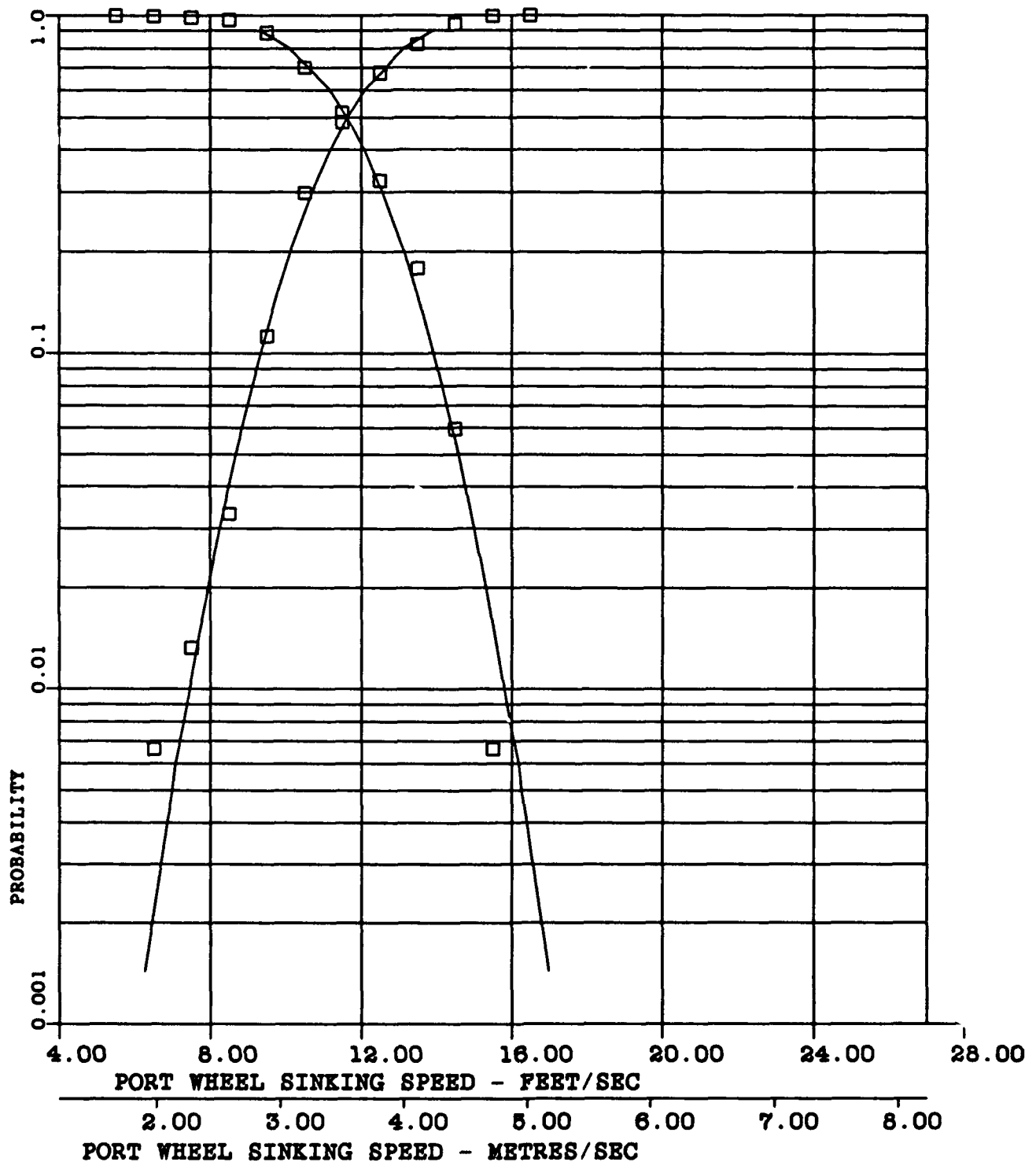


FIGURE H-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -11.35 FEET/SEC (3.46 METRES/SEC)

A3--.29

S-1.86 FEET/SEC (.56 METRES/SEC)

A4-3.70

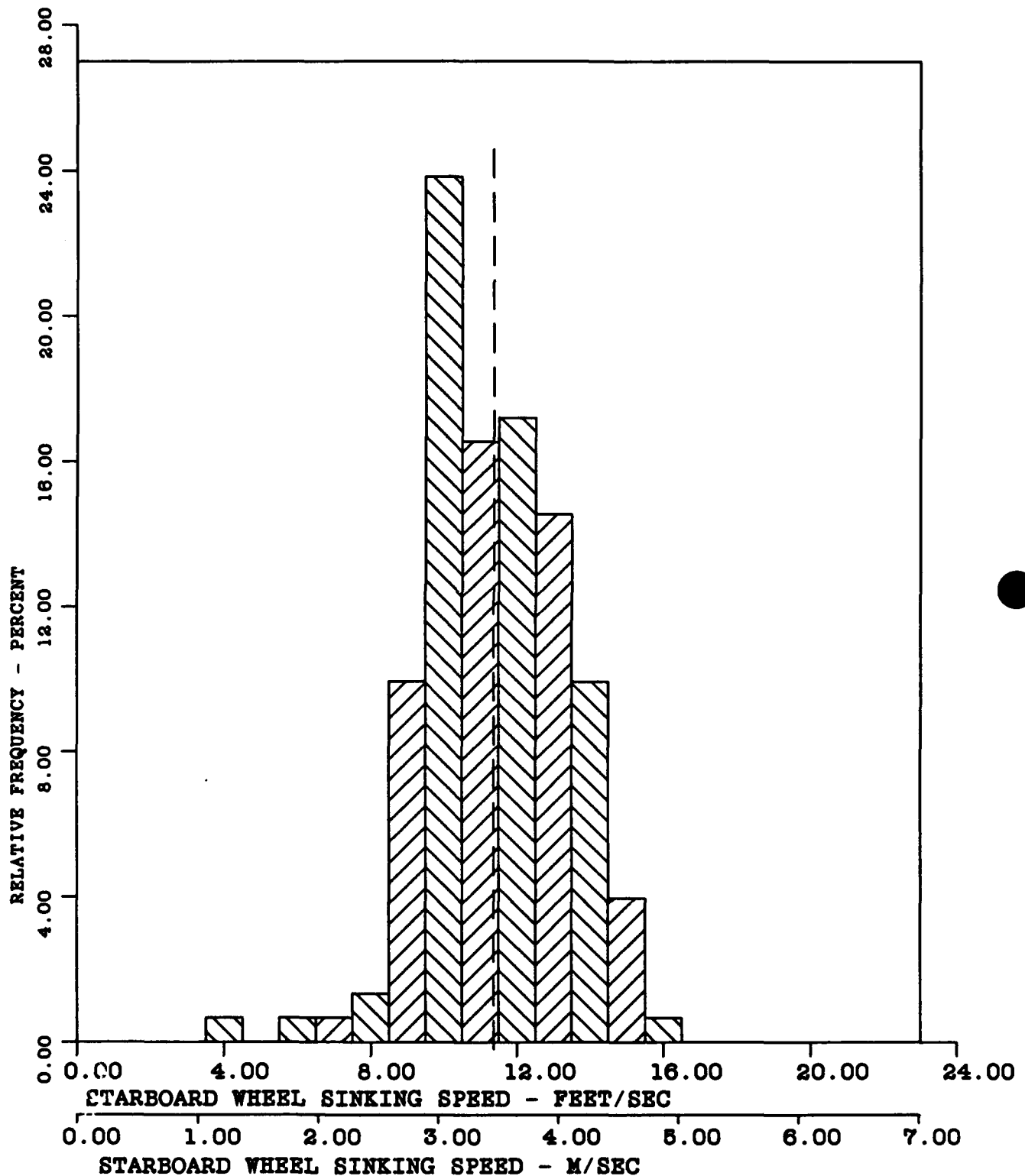


FIGURE H-11 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -11.35 FEET/SEC (3.46 METRES/SEC)

A3--.29

S-1.86 FEET/SEC (.56 METRES/SEC)

A4-3.70

CURVE FITTED - NORMAL

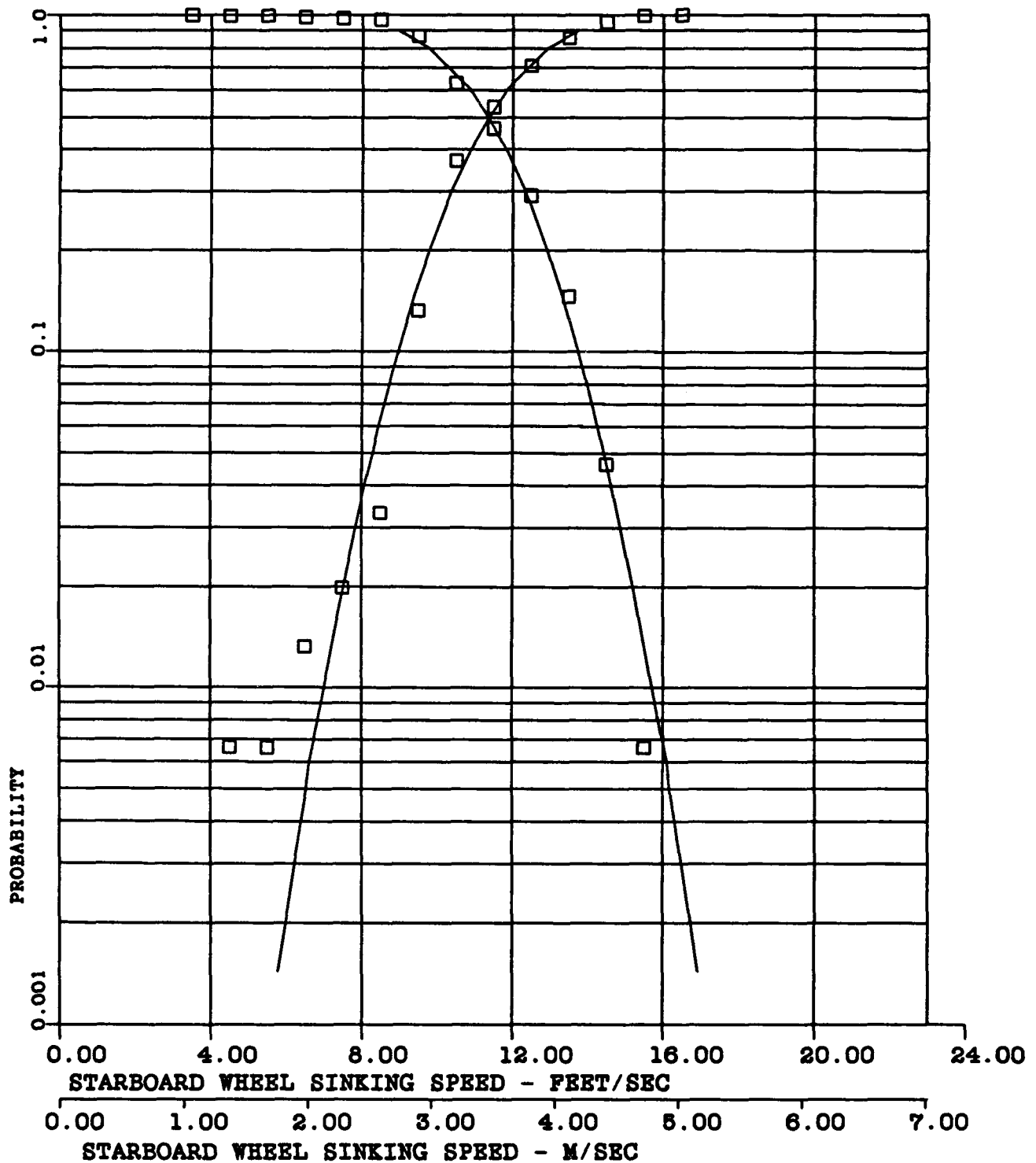


FIGURE H-12 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -11.52 FEET/SEC (3.51 METRES/SEC)

A3--.15

S-1.76 FEET/SEC (.53 METRES/SEC)

A4-3.26

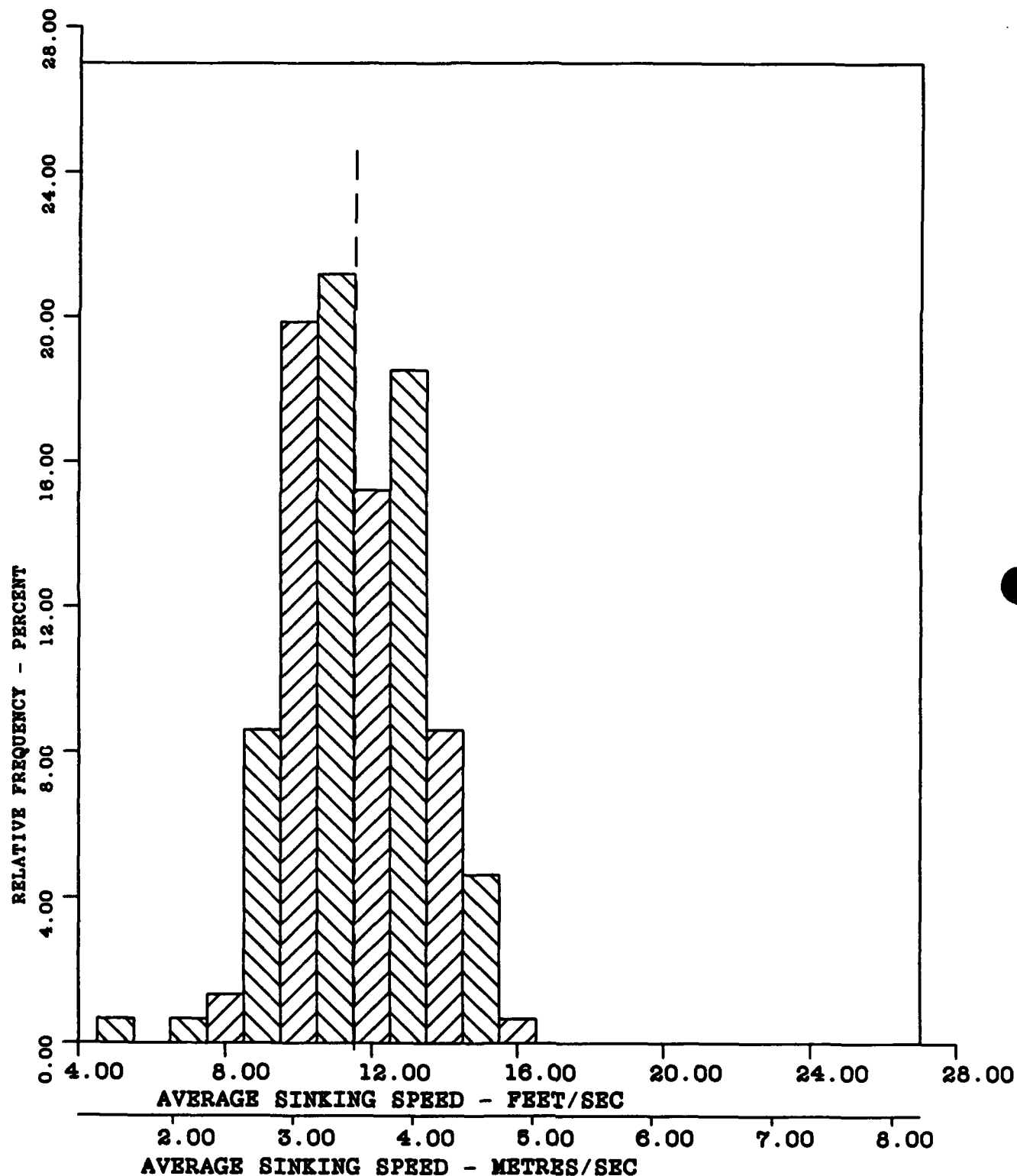


FIGURE H-13 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -11.52 FEET/SEC (3.51 METRES/SEC)

A3--.15

S-1.76 FEET/SEC (.53 METRES/SEC)

A4-3.26

CURVE FITTED - NORMAL

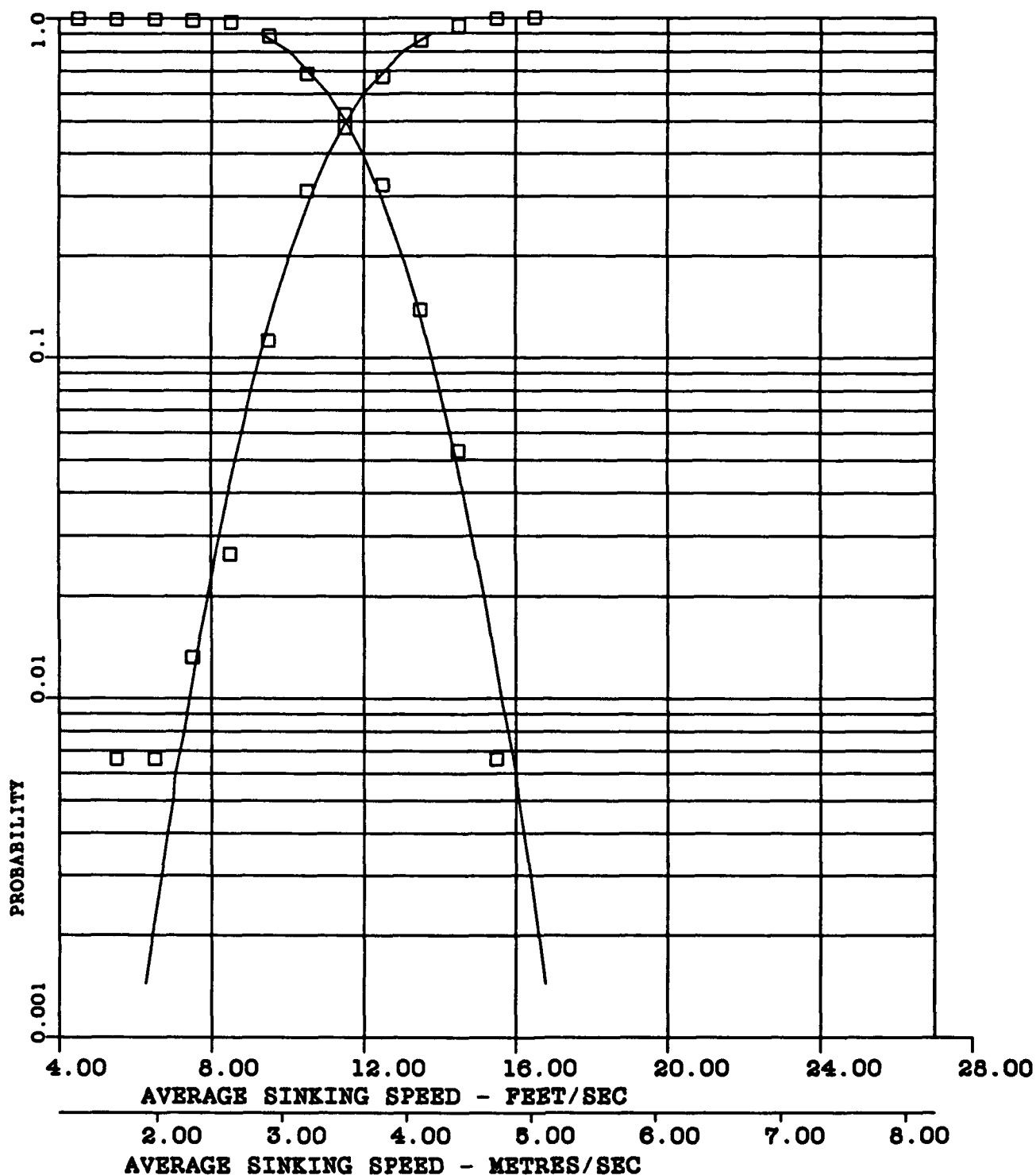


FIGURE H-14 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -10.48 FEET/SEC (3.19 METRES/SEC)

A3-.35

S-1.34 FEET/SEC (.40 METRES/SEC)

A4-1.81

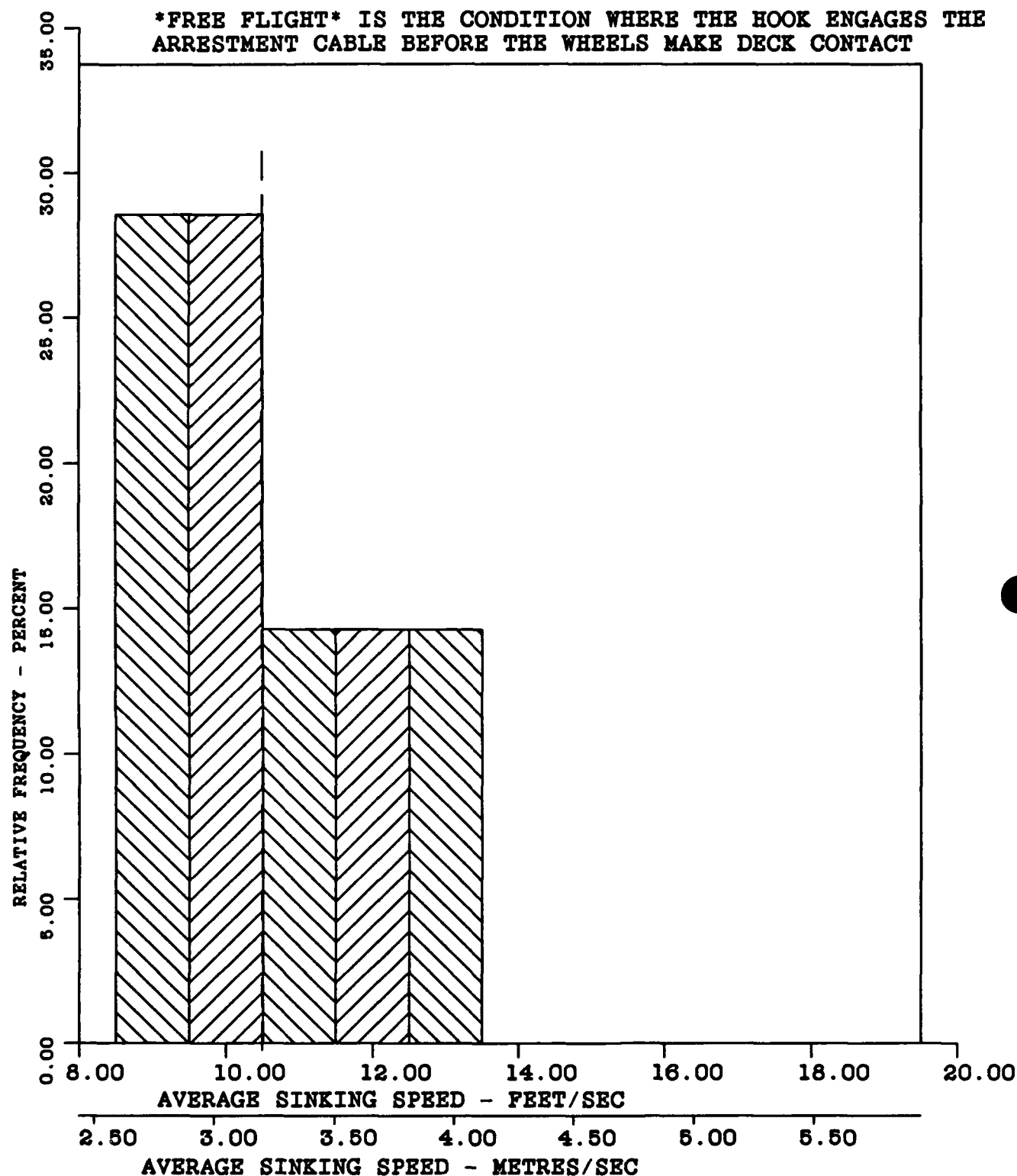


FIGURE H-15 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -10.48 FEET/SEC (3.19 METRES/SEC)

A3-.35

S-1.34 FEET/SEC (.40 METRES/SEC)

A4-1.81

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

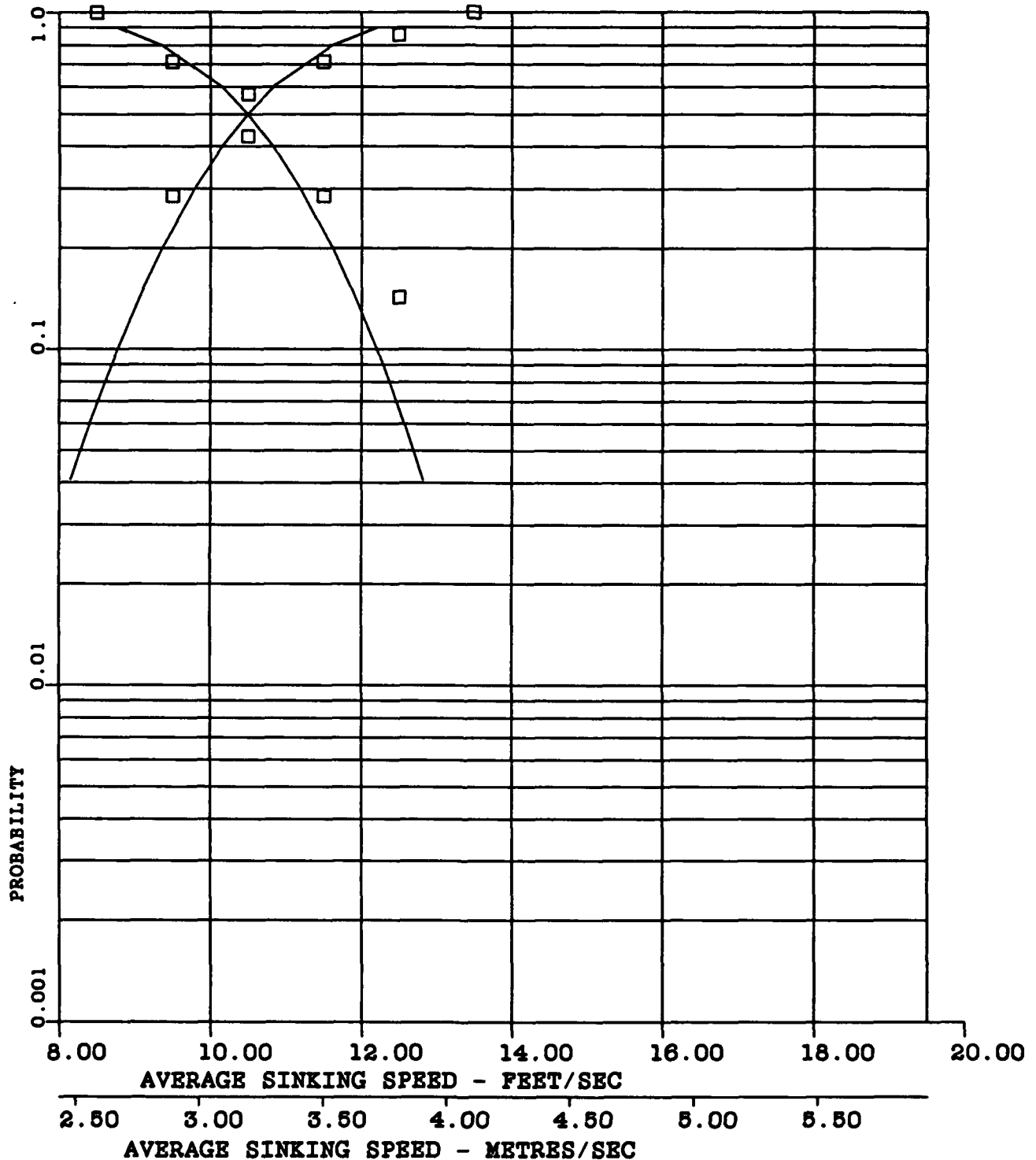


FIGURE H-16 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -1.06

A3-.73

S-.08

A4-4.65

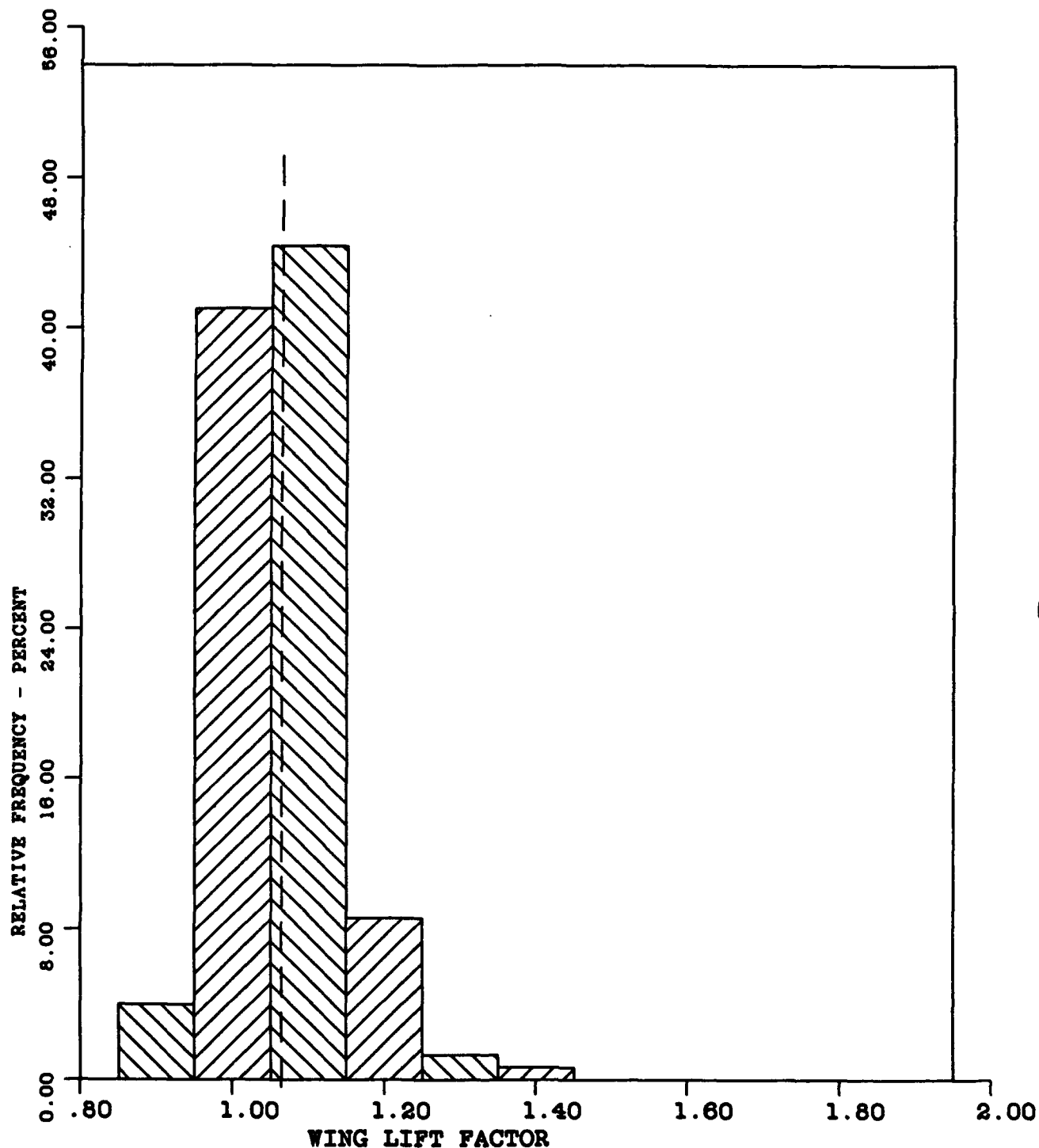


FIGURE H-17 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -1.06

A3-.73

S=.08

A4-4.65

CURVE FITTED - PEARSON TYPE III

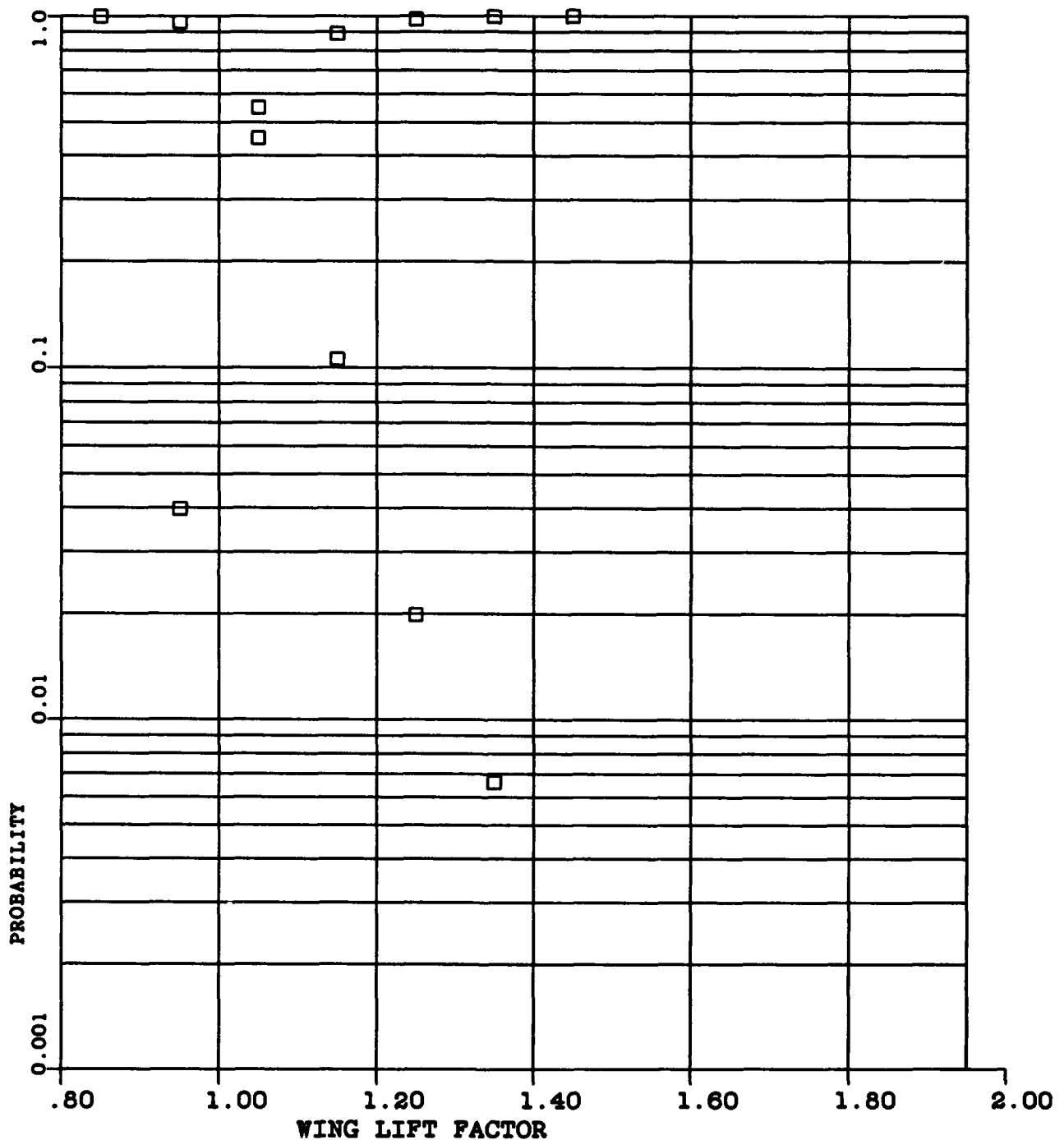


FIGURE H-18 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -1.11

A3--.27

S=.08

A4-1.49

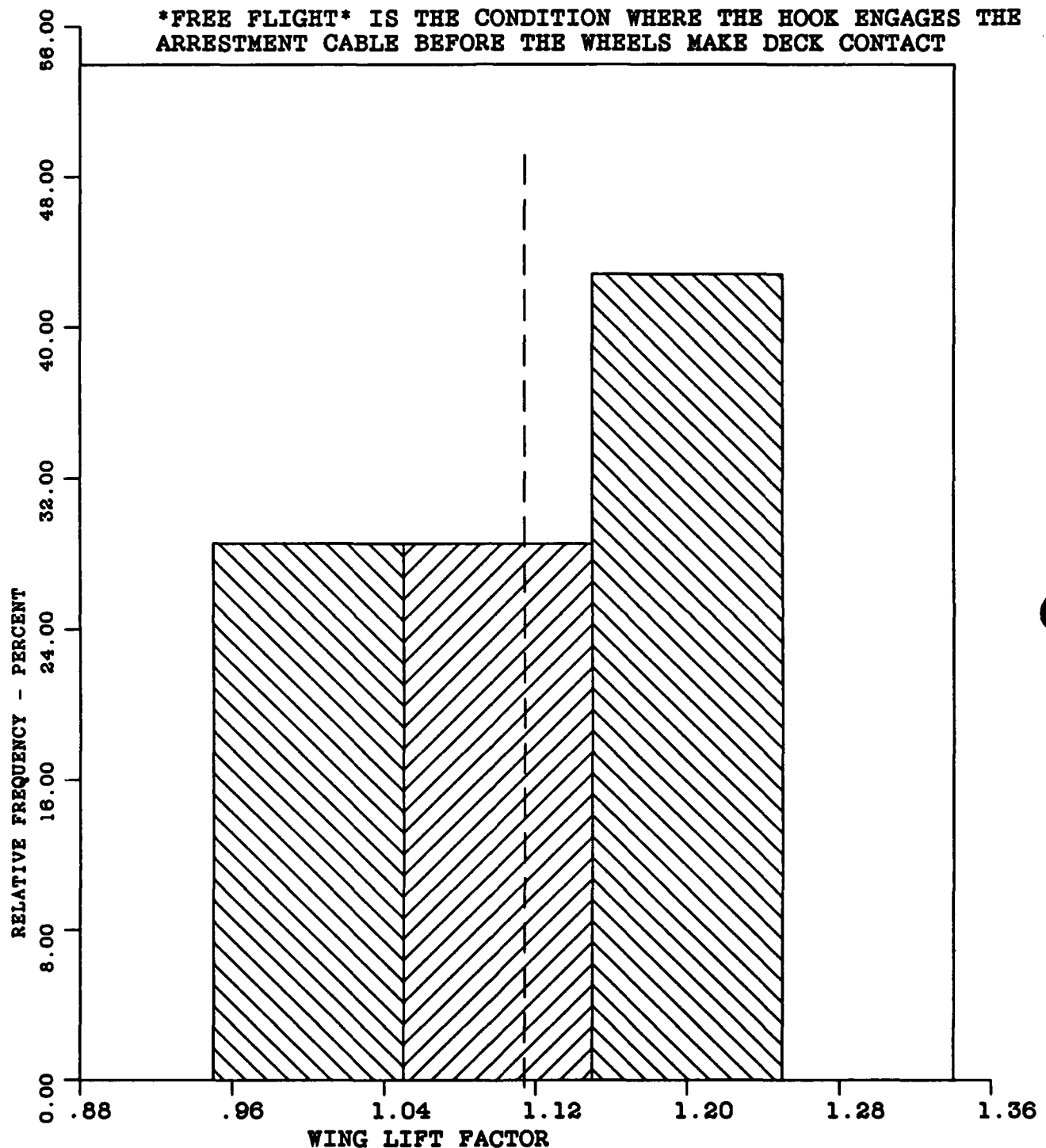


FIGURE H-19 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FREE FLIGHT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N=7

 $\bar{X}=1.11$ 

A3=-.27

S=.08

A4=1.49

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

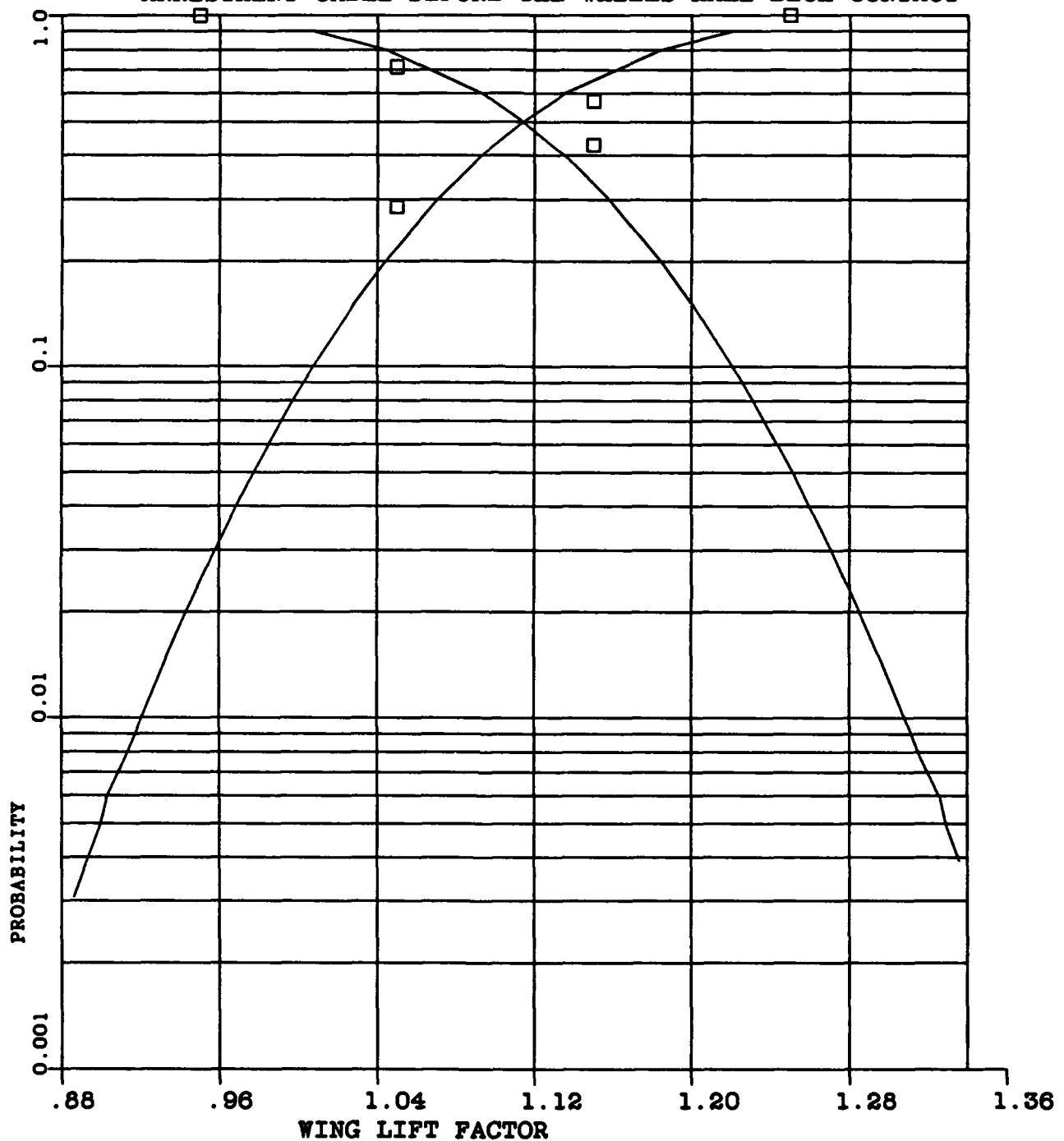


FIGURE H-20 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-147

 $\bar{X}$ =8.80 DEGREES (.153 RADIANS)

A3-.03

S=1.05 DEGREES (.018 RADIANS)

A4=3.40

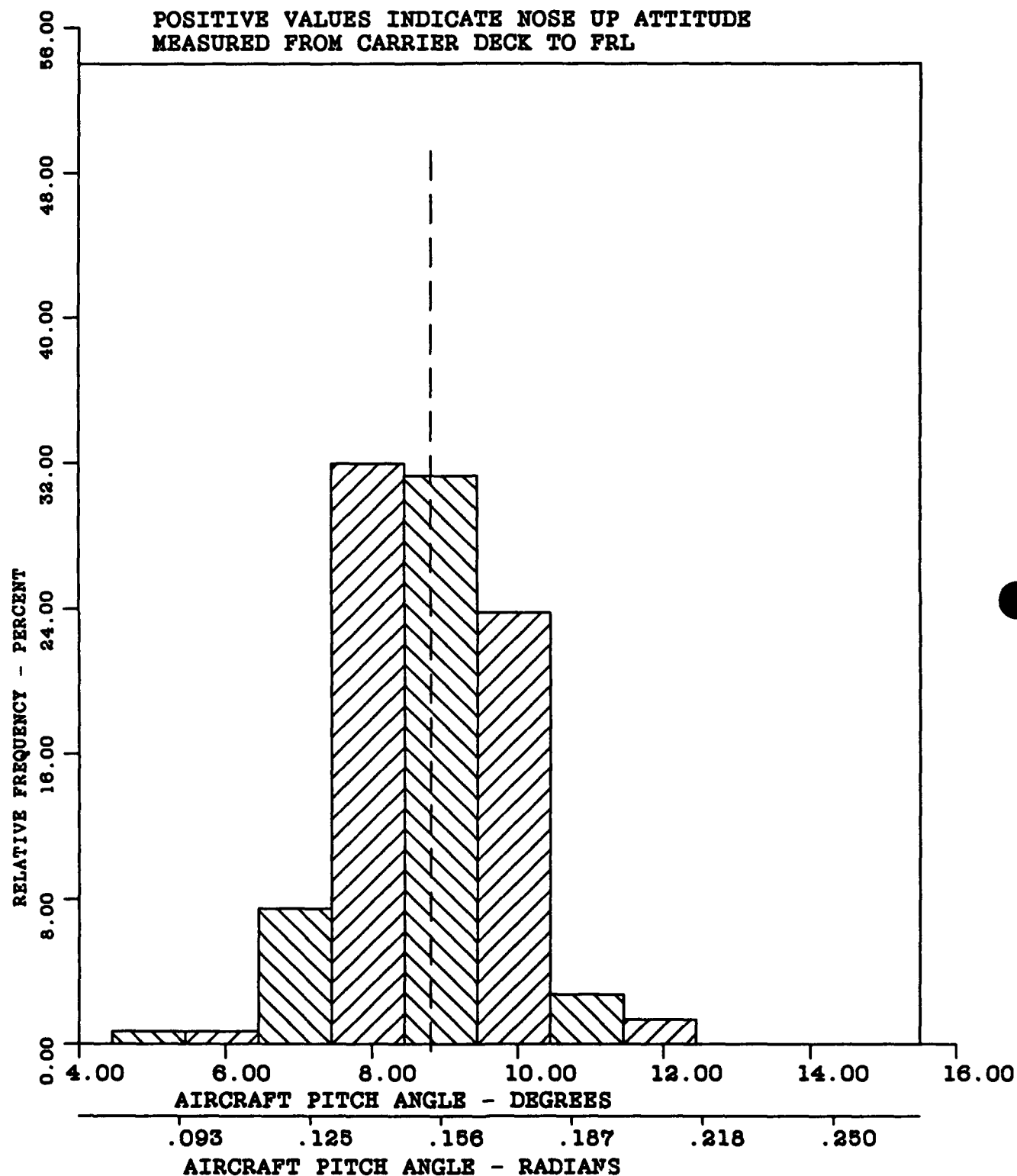


FIGURE H-21 FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-147

 $\bar{X}$ =8.80 DEGREES (.153 RADIANS)

A3=.03

S=1.05 DEGREES (.018 RADIANS)

A4=3.40

CURVE FITTED - NORMAL

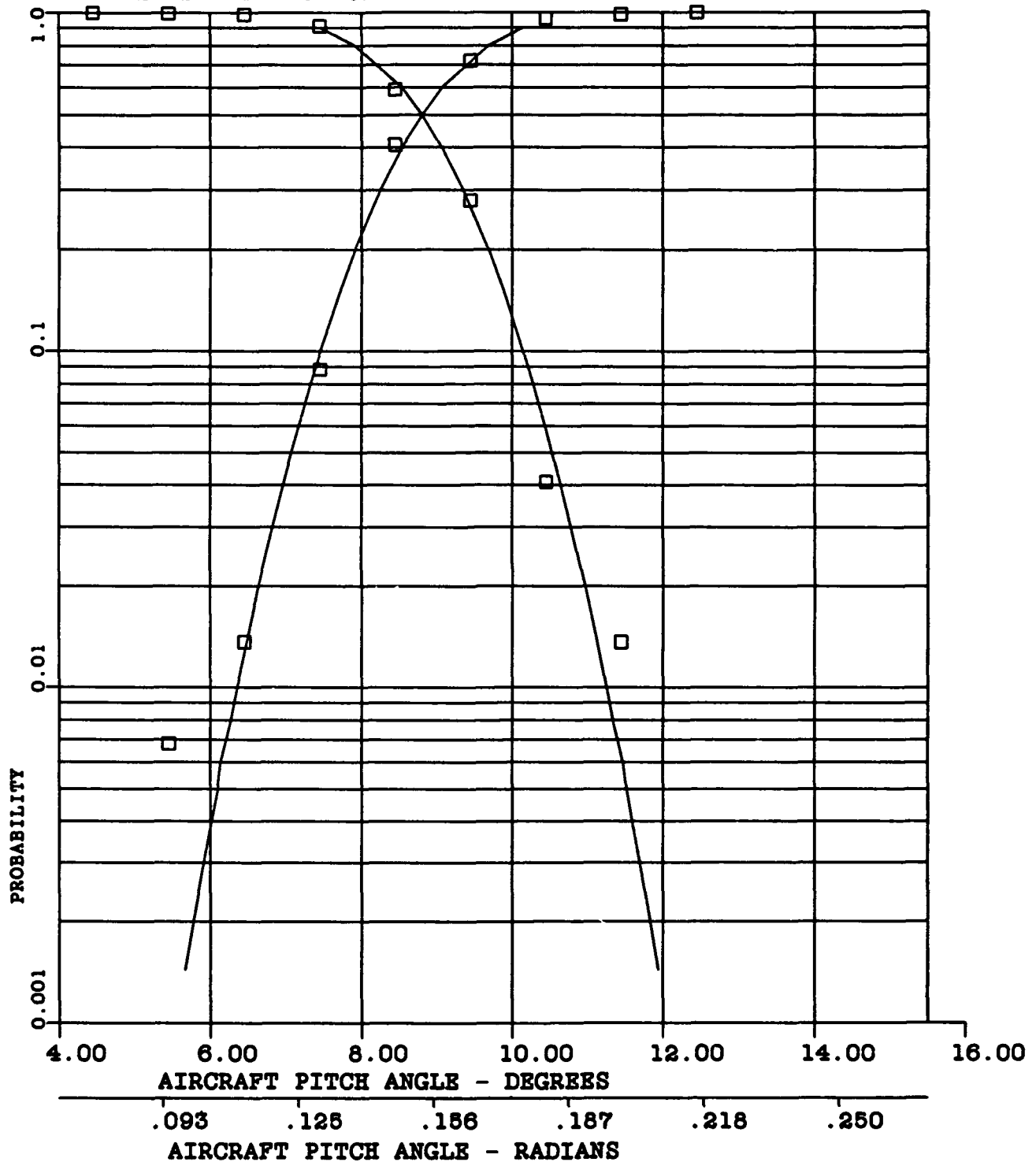
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE H-22 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -8.18 DEGREES (.142 RADIANS)

A3-.23

S-1.38 DEGREES (.024 RADIANS)

A4-3.03

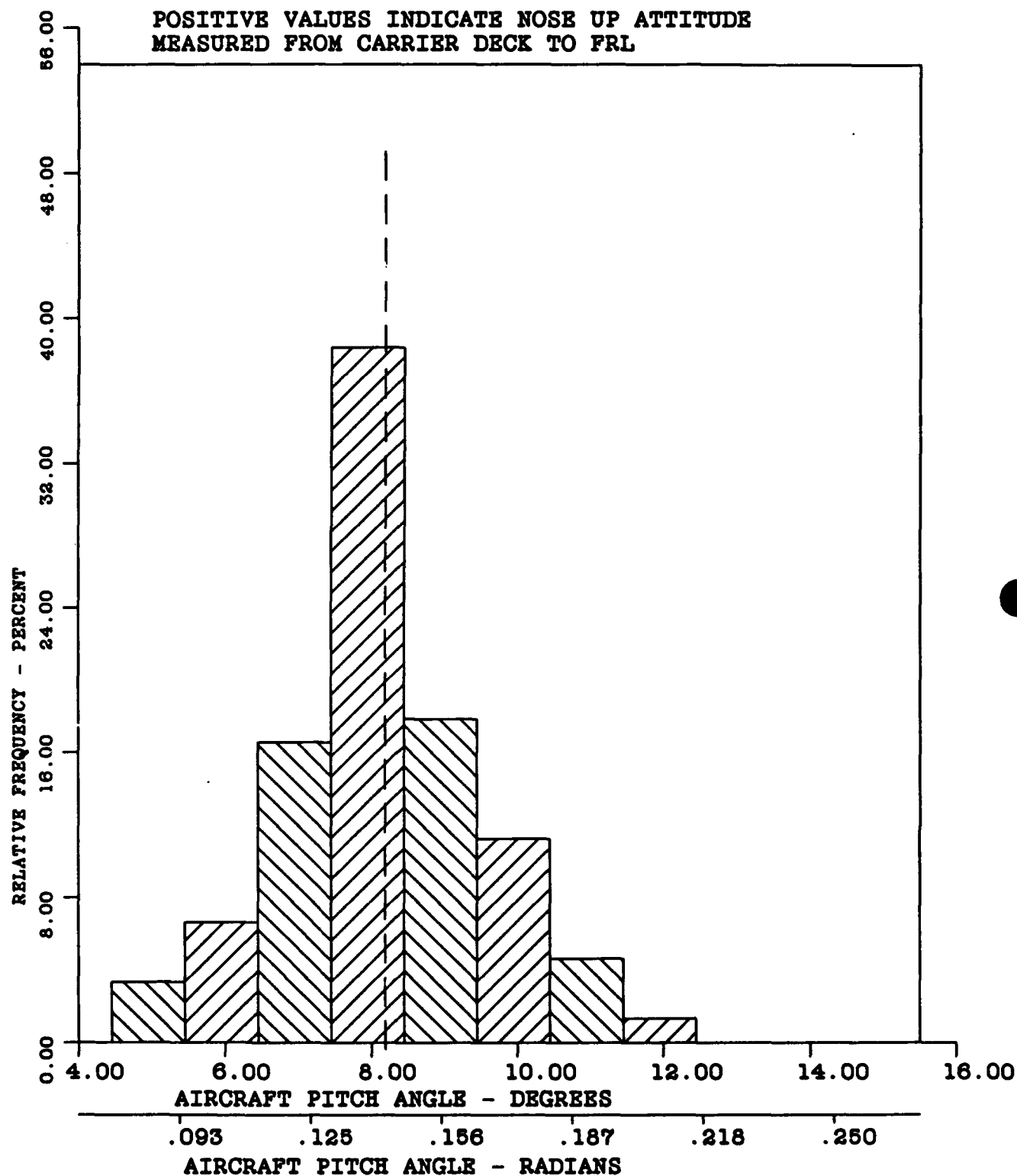


FIGURE H-23 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -8.18 DEGREES (.142 RADIANS)

A3-.23

S-1.38 DEGREES (.024 RADIANS)

A4-3.03

CURVE FITTED - NORMAL

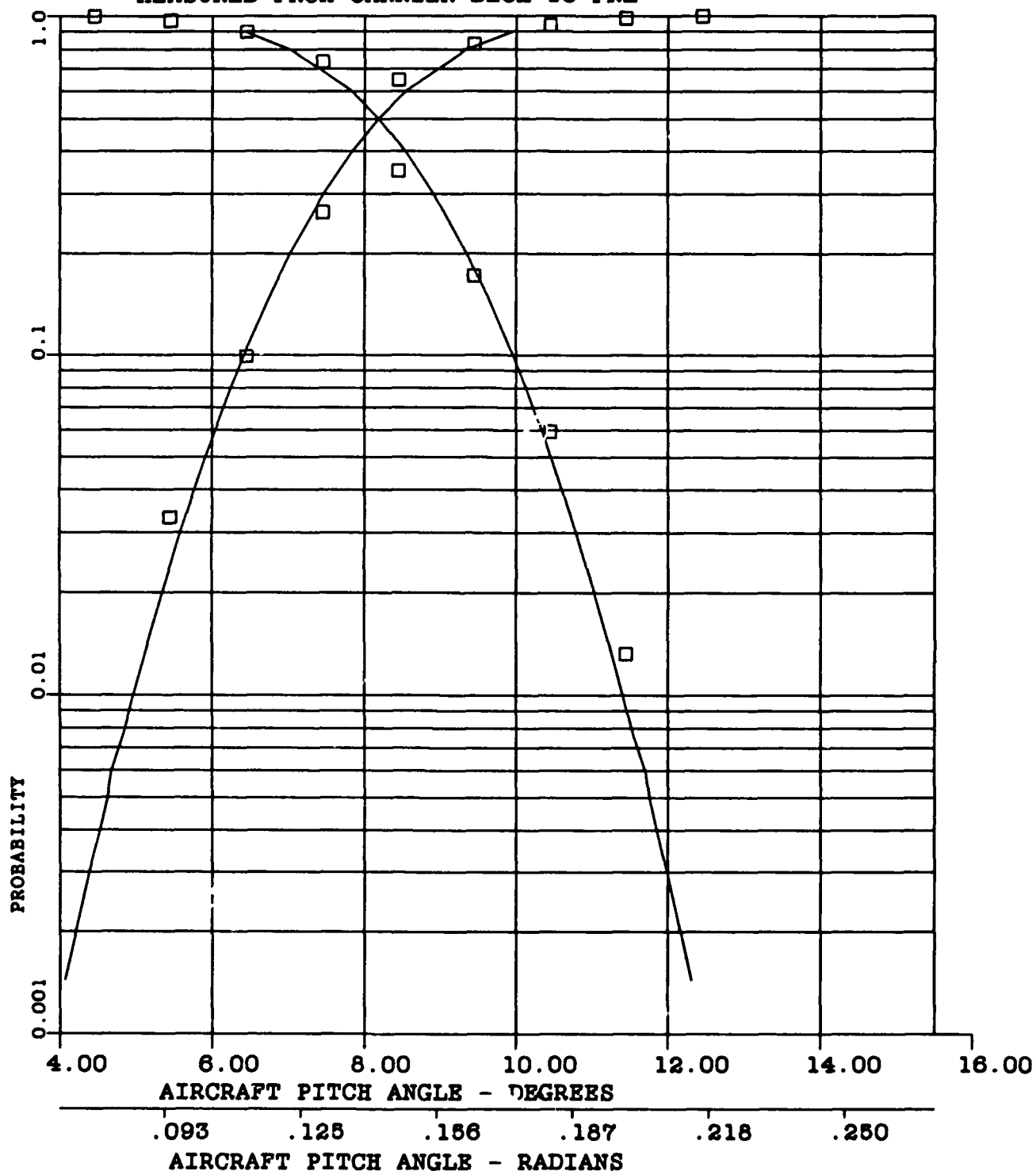
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE H-24 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=7

 $\bar{X}$ =10.34 DEGREES (.180 RADIANS)

A3=.69

S=1.32 DEGREES (.023 RADIANS)

A4=2.42

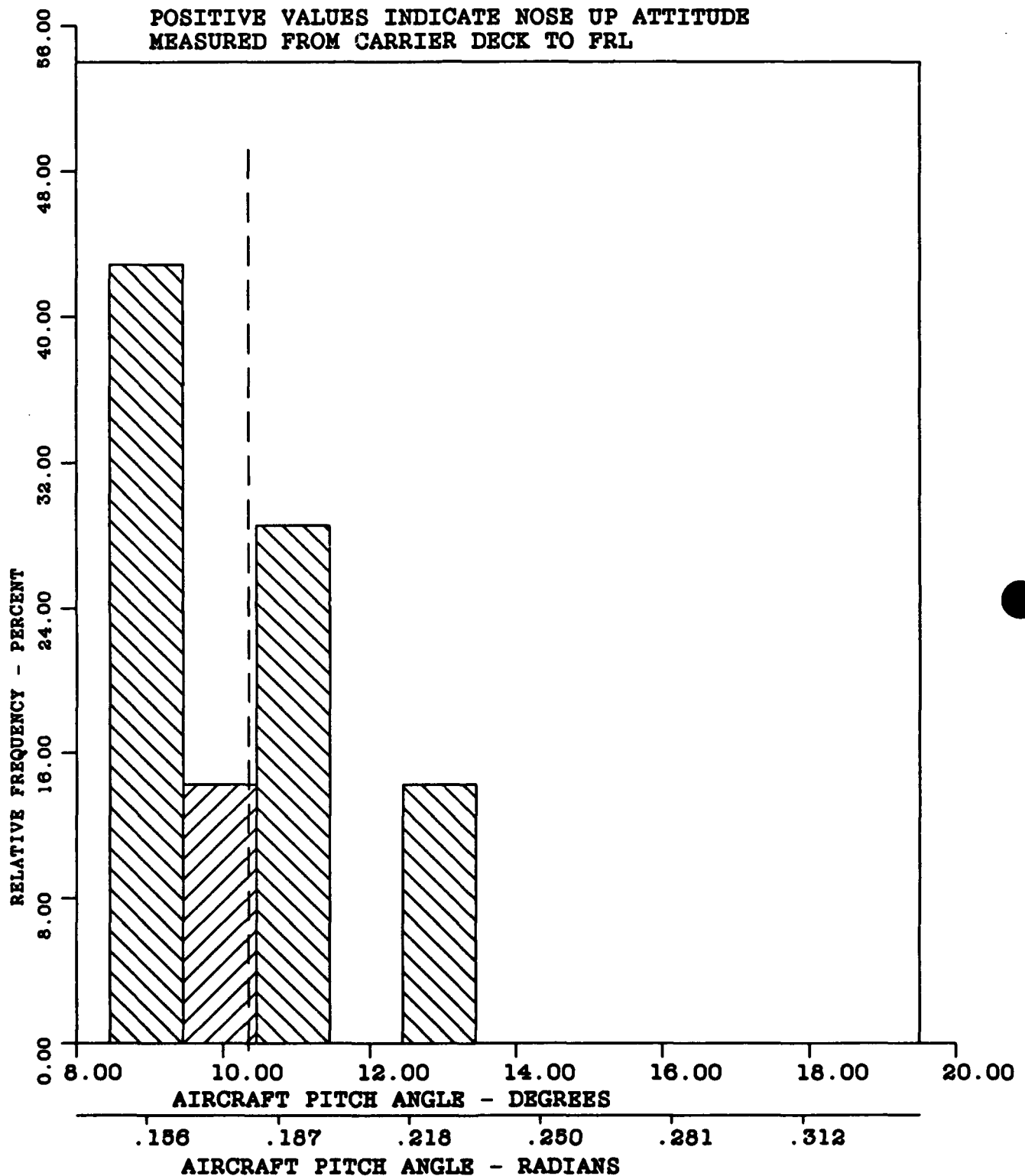


FIGURE H-25 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -10.34 DEGREES (.180 RADIANS)

A3-.69

S-1.32 DEGREES (.023 RADIANS)

A4-2.42

CURVE FITTED - NORMAL

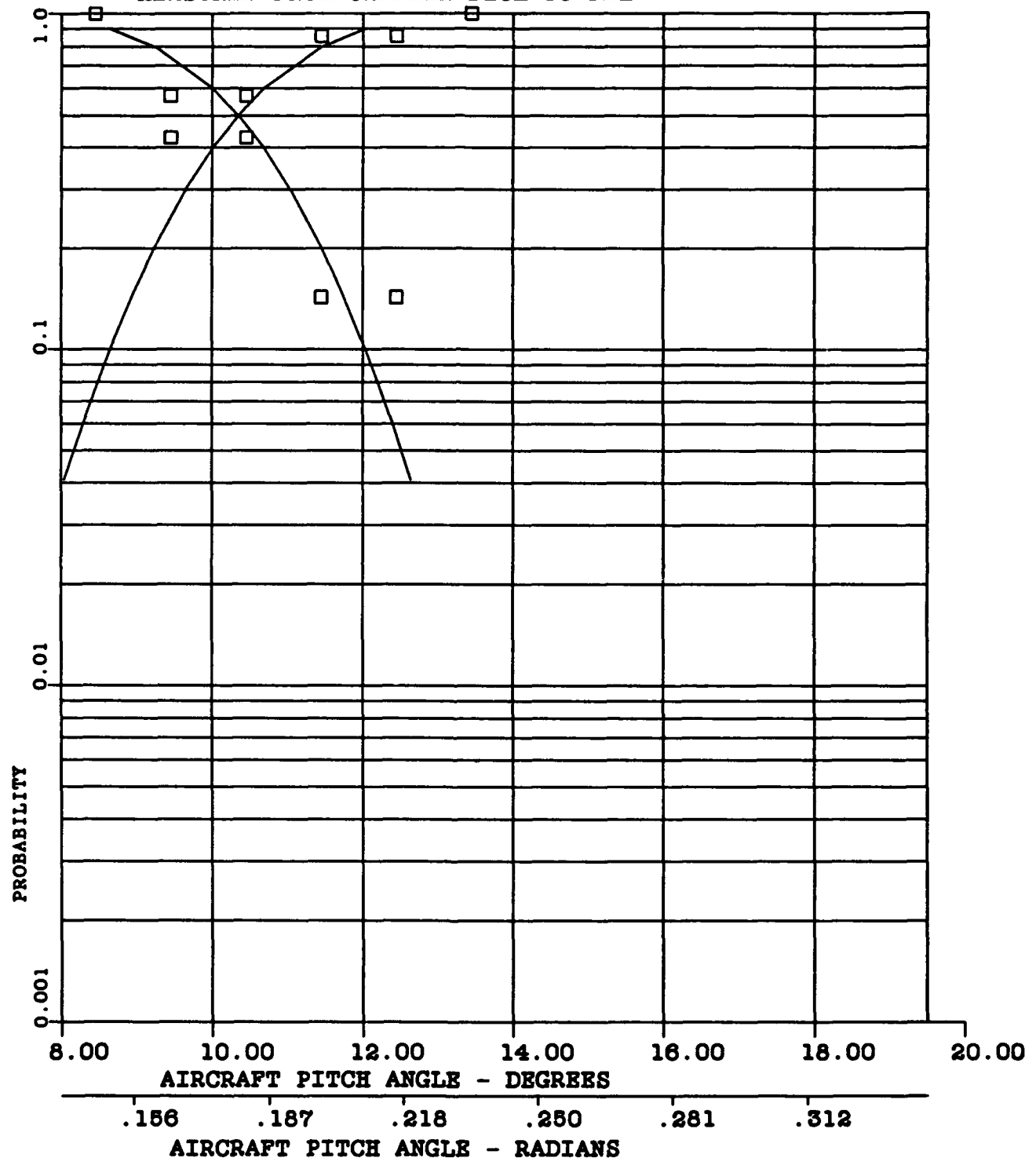
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE H-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-147

 $\bar{X}$ -.56 DEGREES (.009 RADIANS)

A3--.17

S-2.57 DEGREES (.044 RADIANS)

A4-2.85

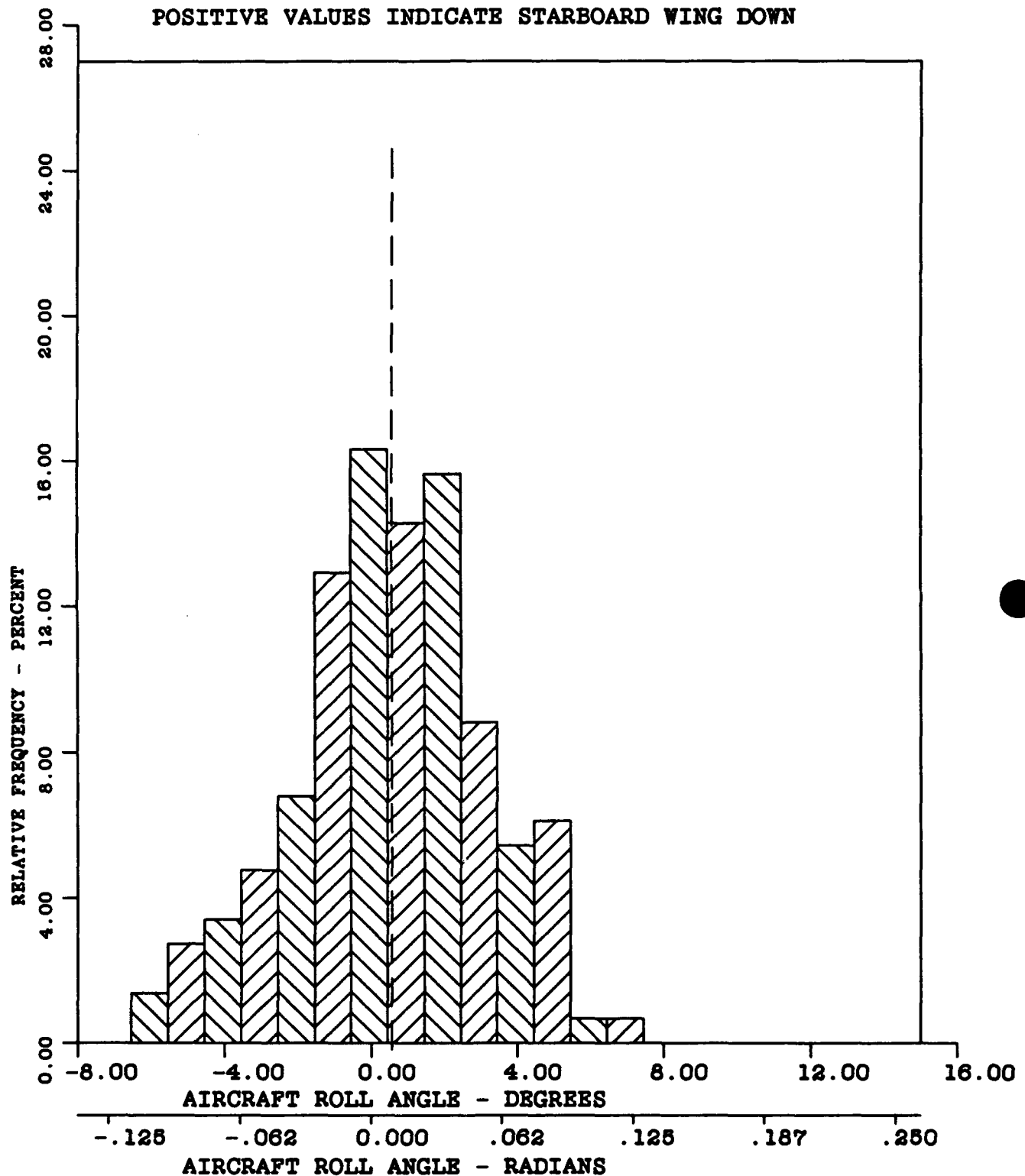


FIGURE H-27 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-147

 $\bar{X}$ -.56 DEGREES (.009 RADIANS)

A3--.17

S-2.57 DEGREES (.044 RADIANS)

A4-2.85

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

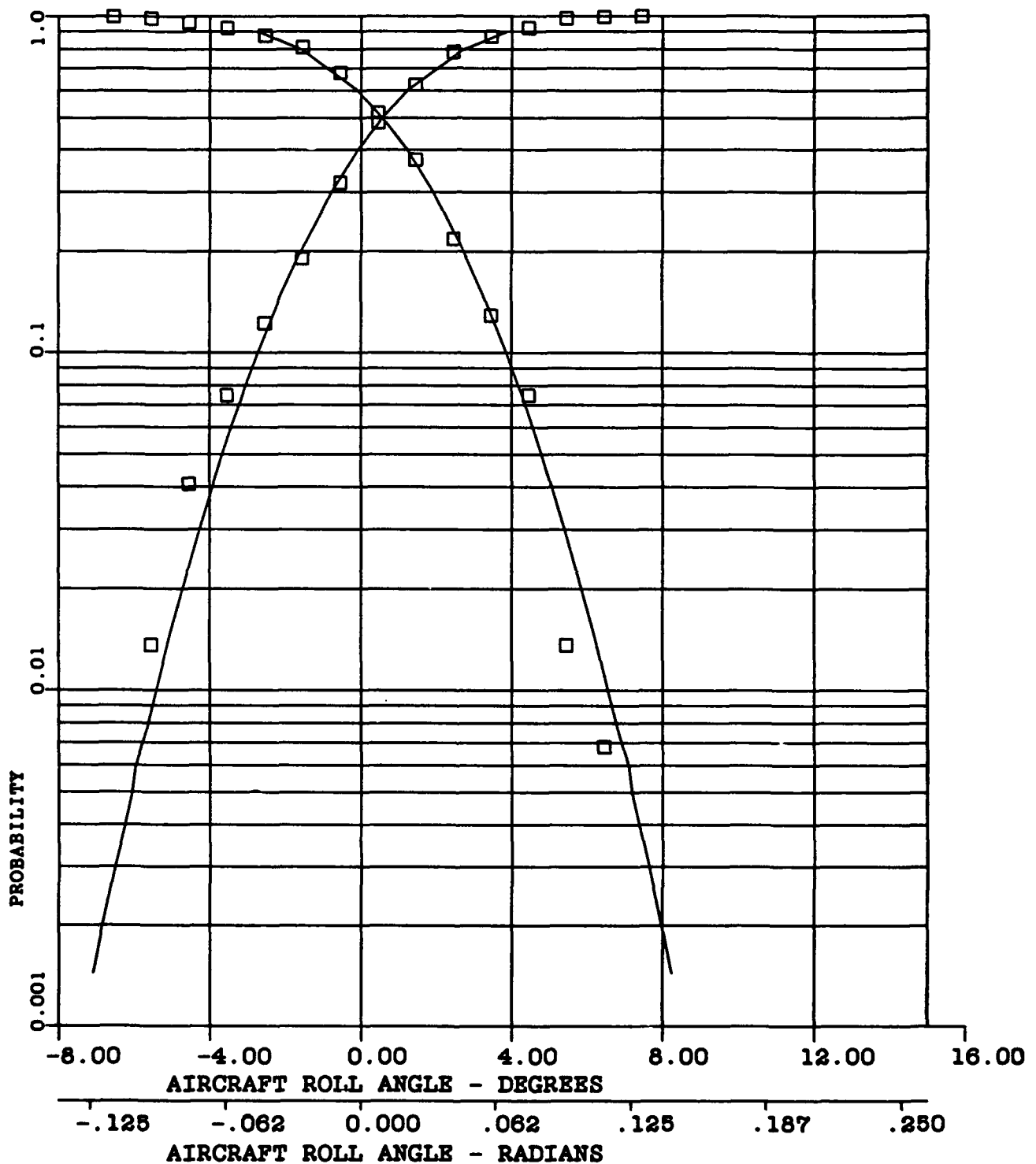


FIGURE H-28 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$  = -.55 DEGREES (-.009 RADIANS)

A3-.21

S=1.98 DEGREES (.034 RADIANS)

A4-3.66

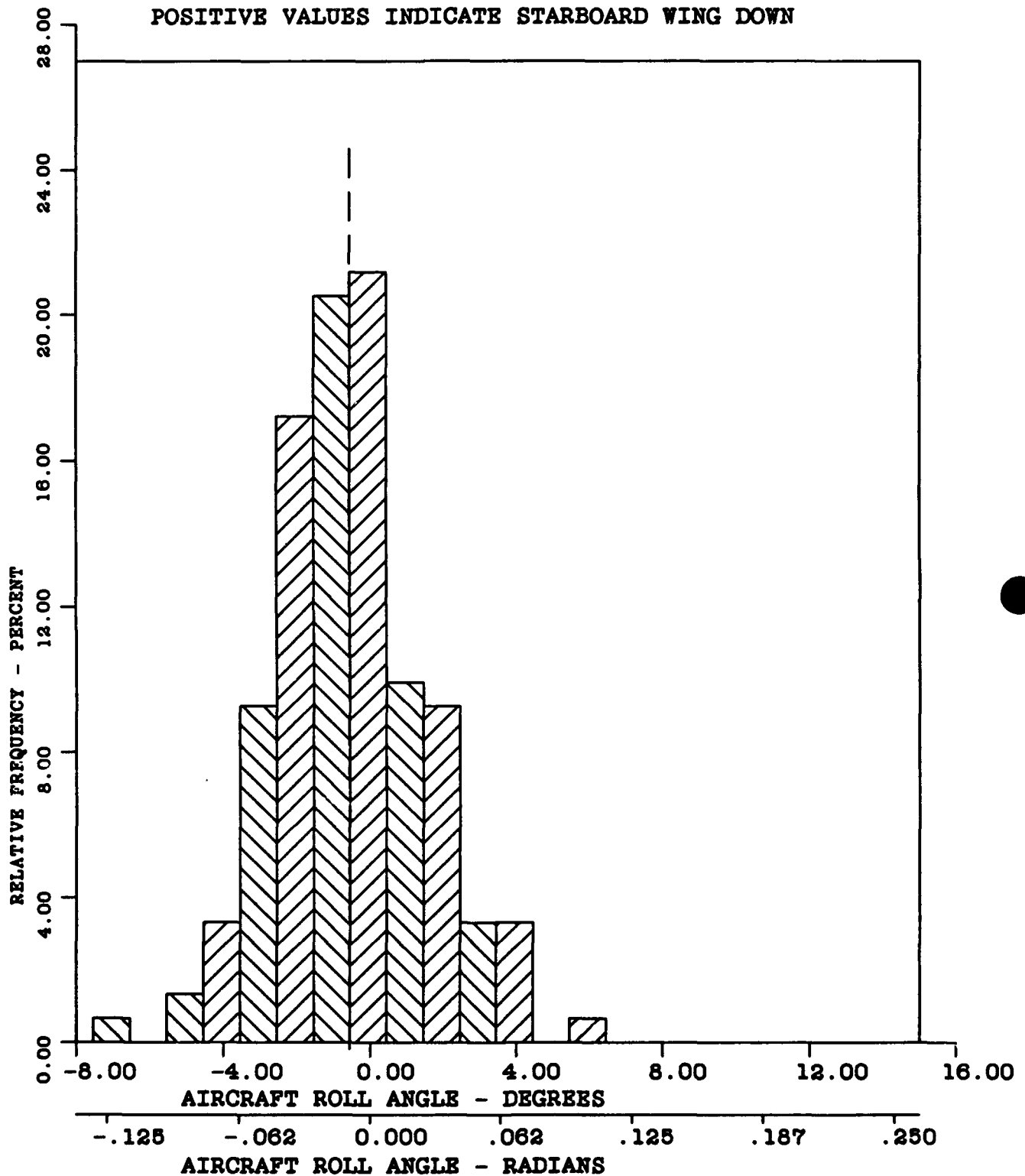


FIGURE H-29 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$  = -.55 DEGREES (-.009 RADIANS)

A3-.21

S=1.98 DEGREES (.034 RADIANS)

A4-3.66

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

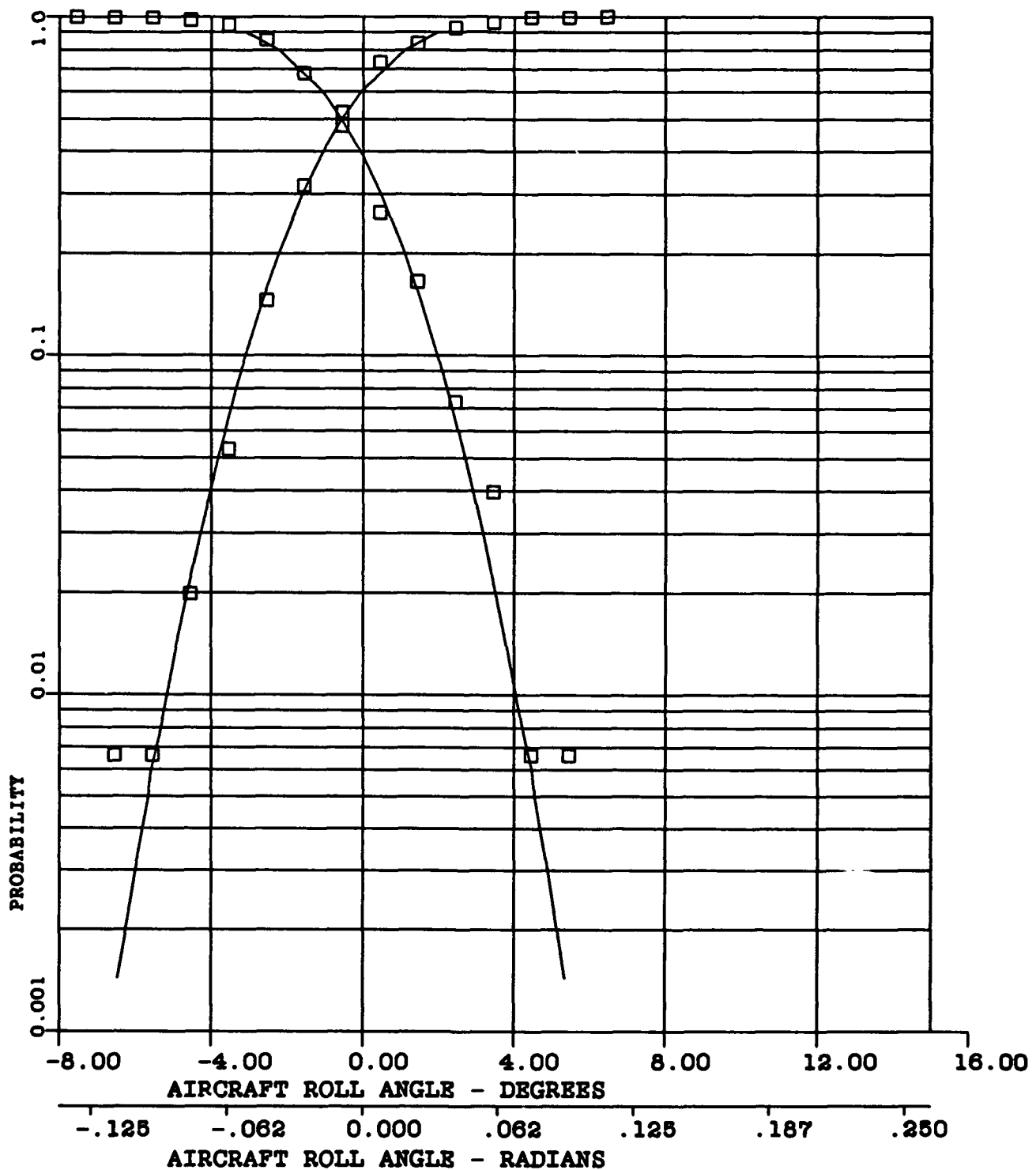


FIGURE H-30 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -.34 DEGREES (.005 RADIANS)

A3--1.56

S-1.49 DEGREES (.026 RADIANS)

A4-4.08

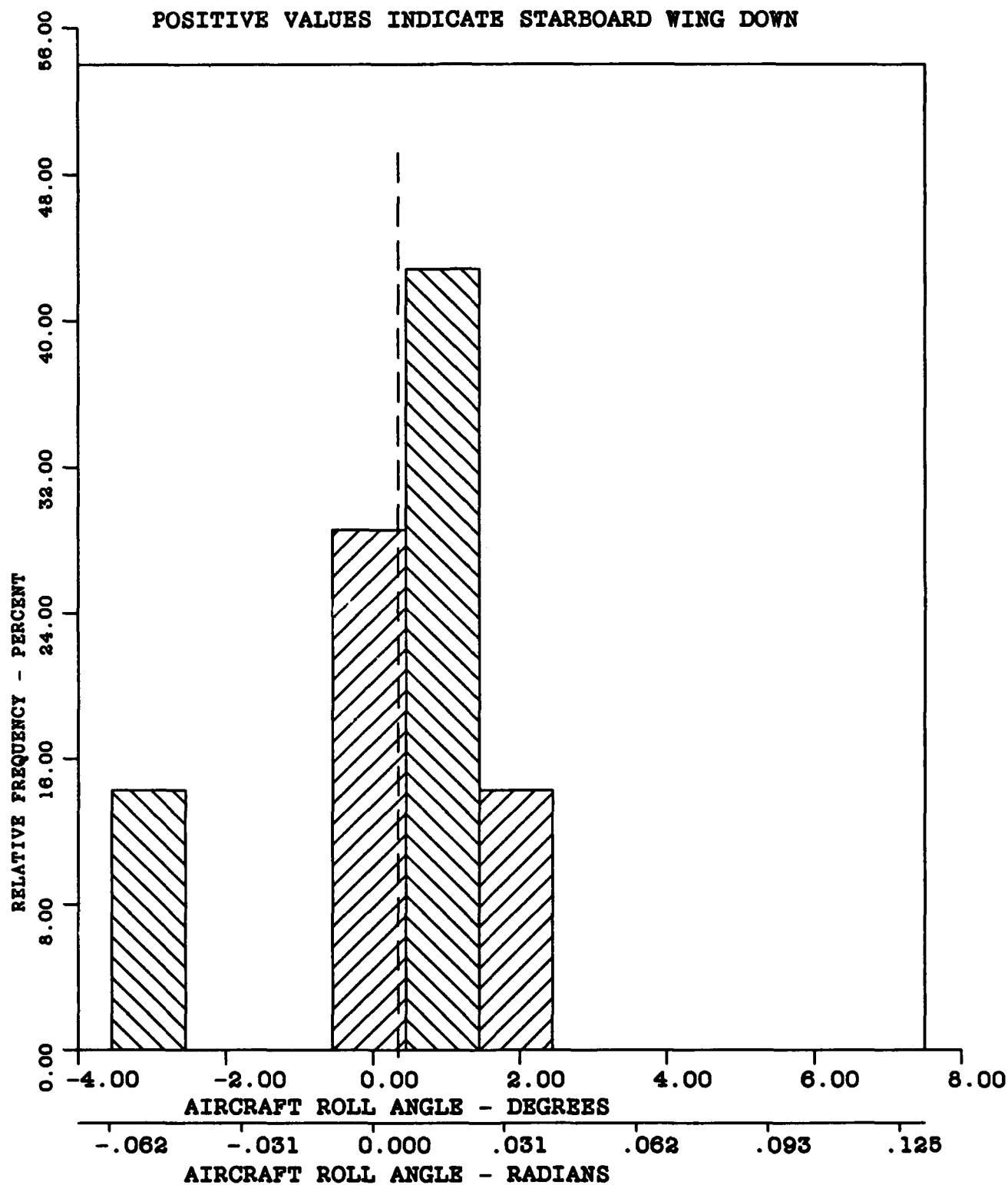


FIGURE H-31 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-7

 $\bar{X}$ -.34 DEGREES (.005 RADIANS)

A3--1.56

S-1.49 DEGREES (.026 RADIANS)

A4-4.08

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

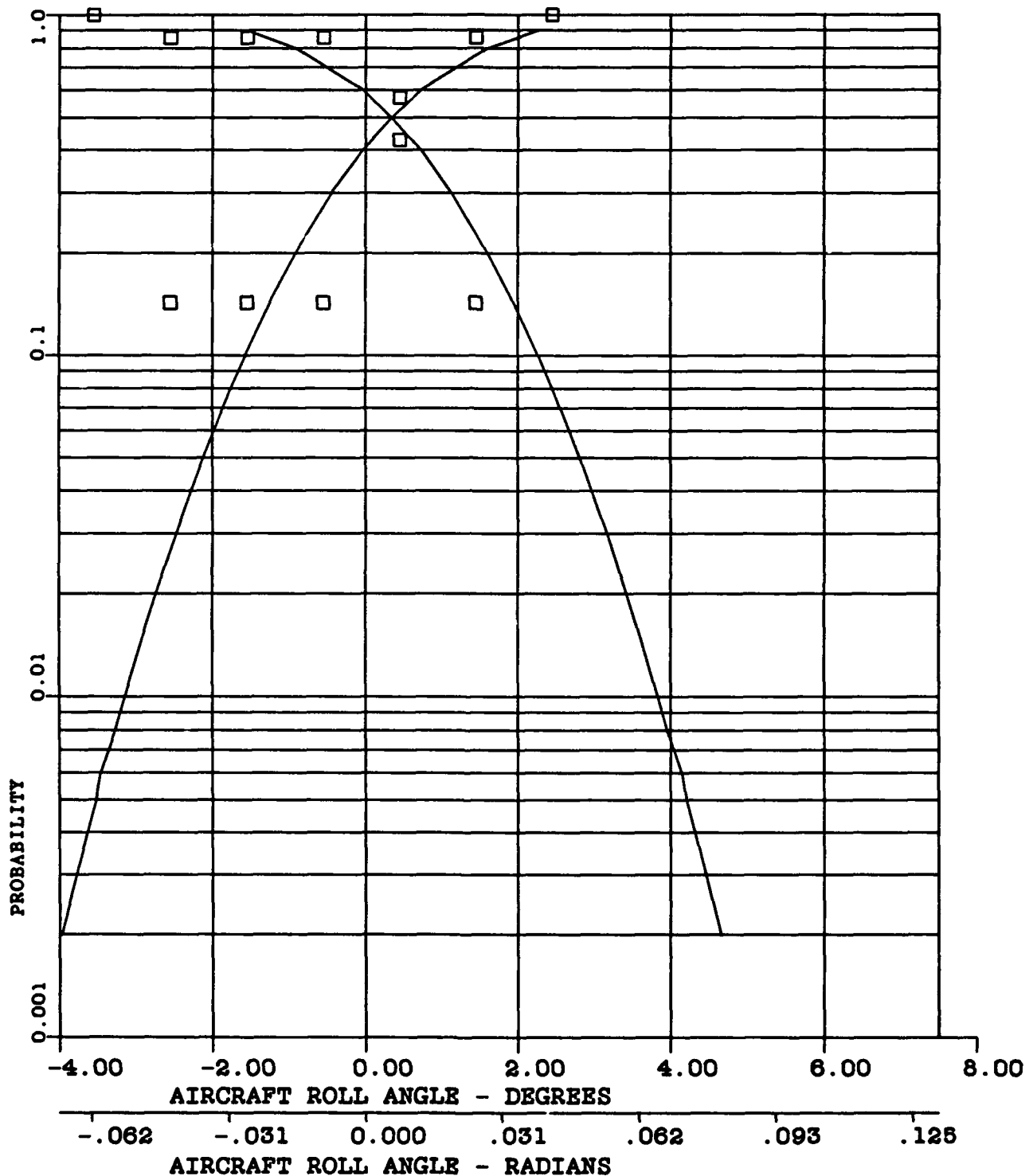


FIGURE H-32 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

$\bar{X}$ -253.10 FEET (77.14 METRES)

S-32.92 FEET (10.03 METRES)

A3--.13

A4-3.01

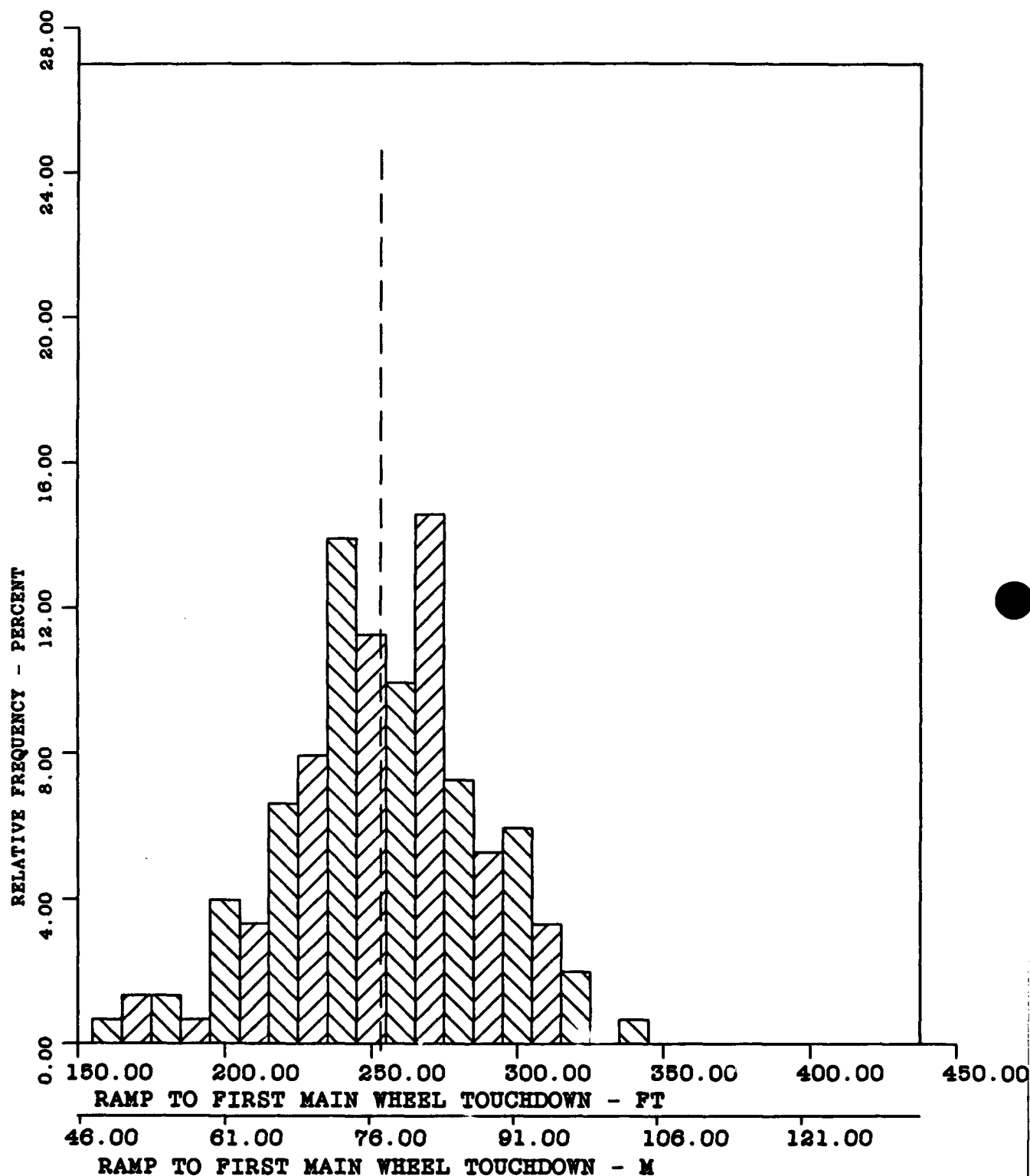


FIGURE H-33 FREQUENCY DISTRIBUTION OF DISTANCE FROM RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -253.10 FEET (77.14 METRES)

A3--.13

S-32.92 FEET (10.03 METRES)

A4-3.01

CURVE FITTED - NORMAL

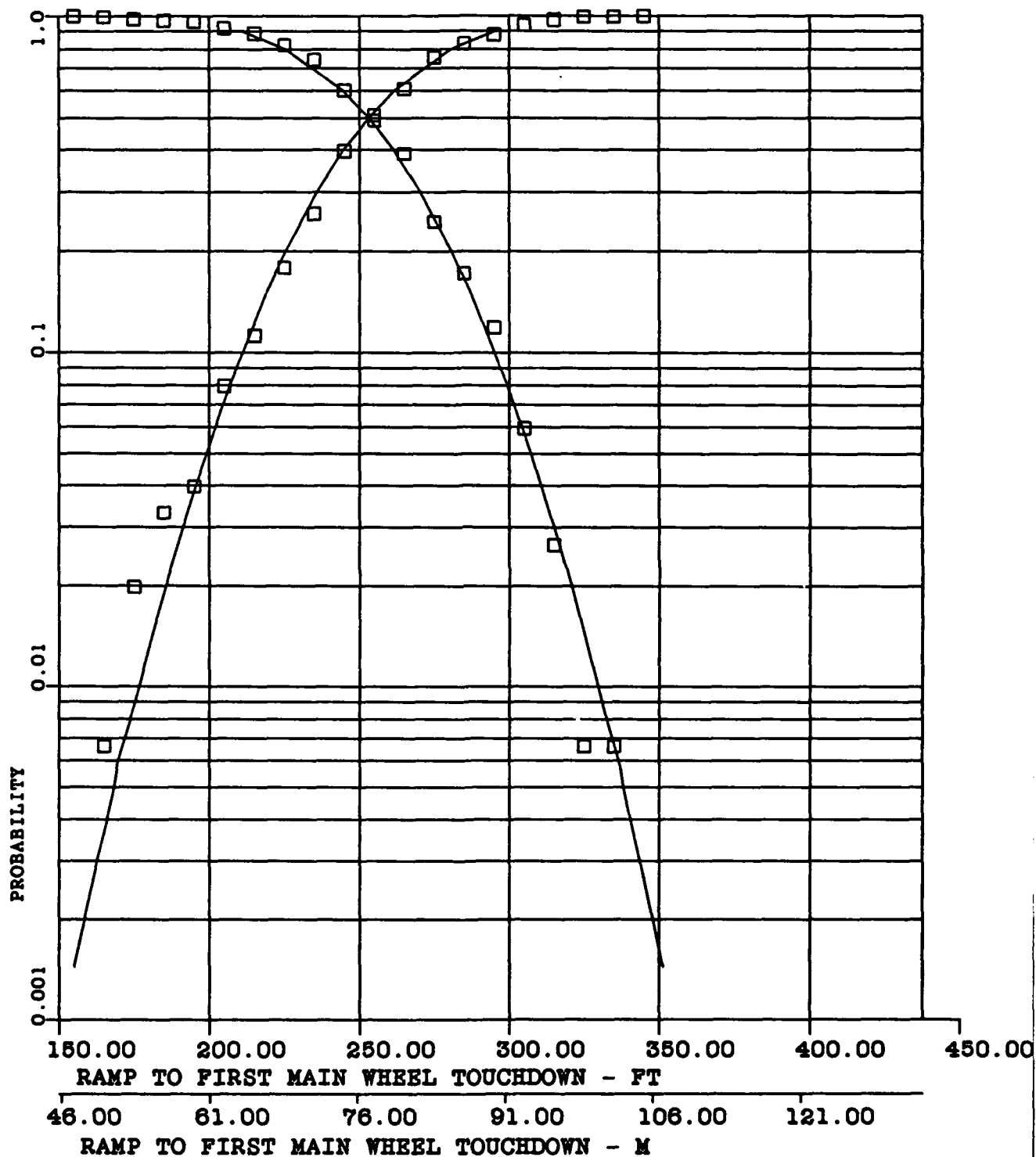


FIGURE H-34 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -9.22 FEET (-2.81 METRES)

A3-1.08

S-4.15 FEET (1.26 METRES)

A4-6.11

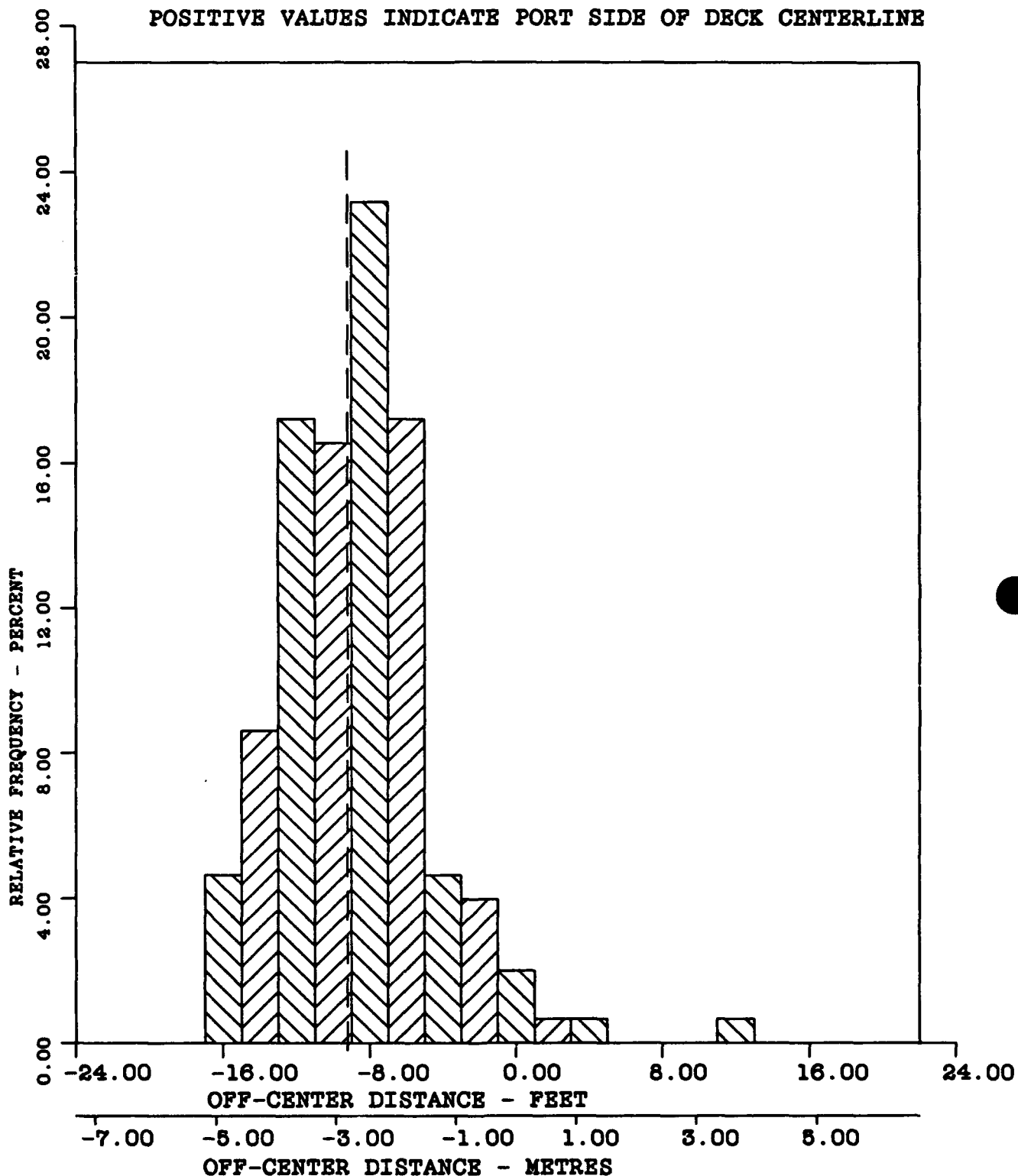


FIGURE H-35 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ --9.22 FEET (-2.81 METRES)

A3-1.08

S-4.15 FEET (1.26 METRES)

A4-6.11

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

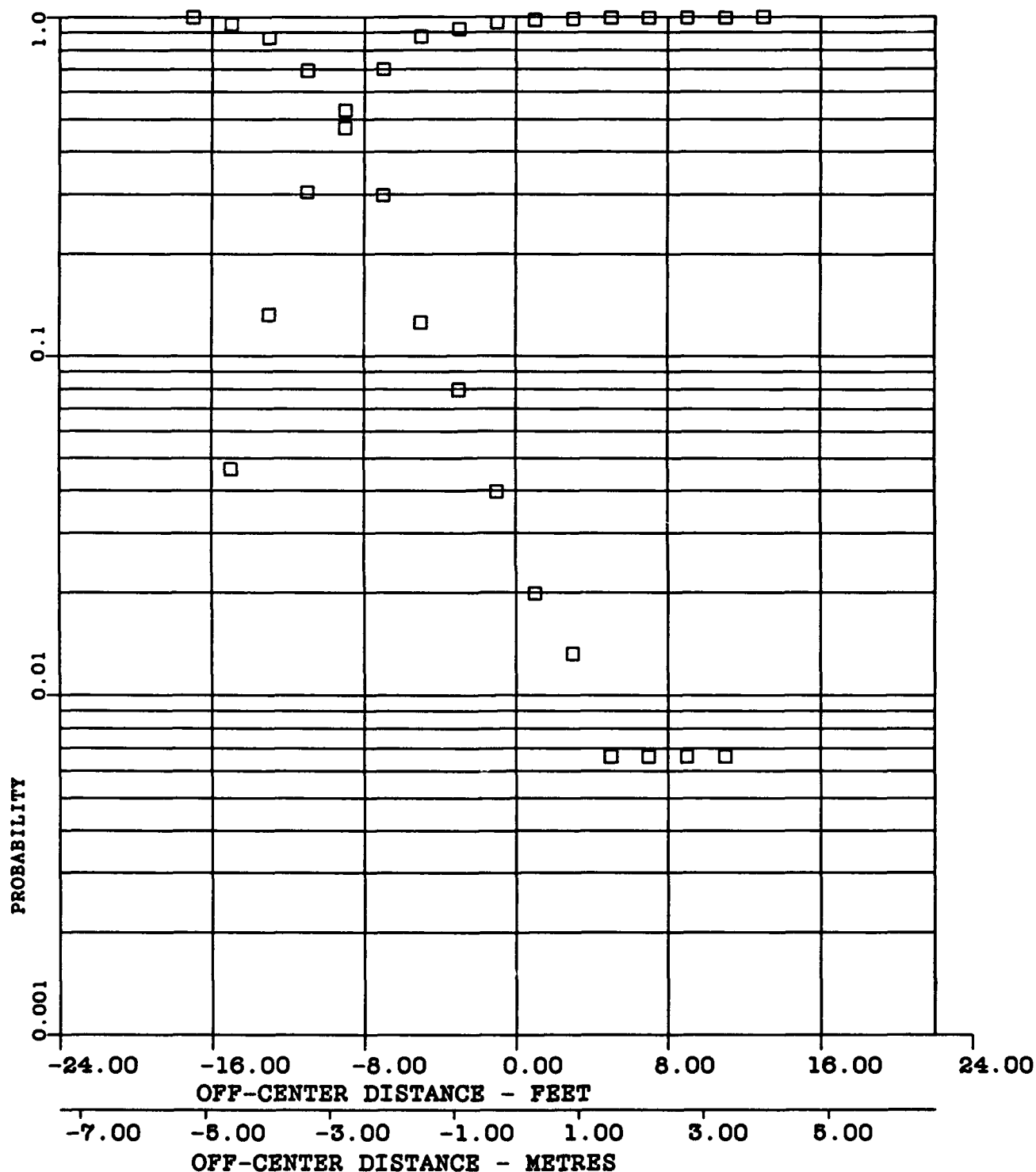


FIGURE H-36 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-119

 $\bar{X}$ -2.89

S=.72

A3--.23

A4-2.76

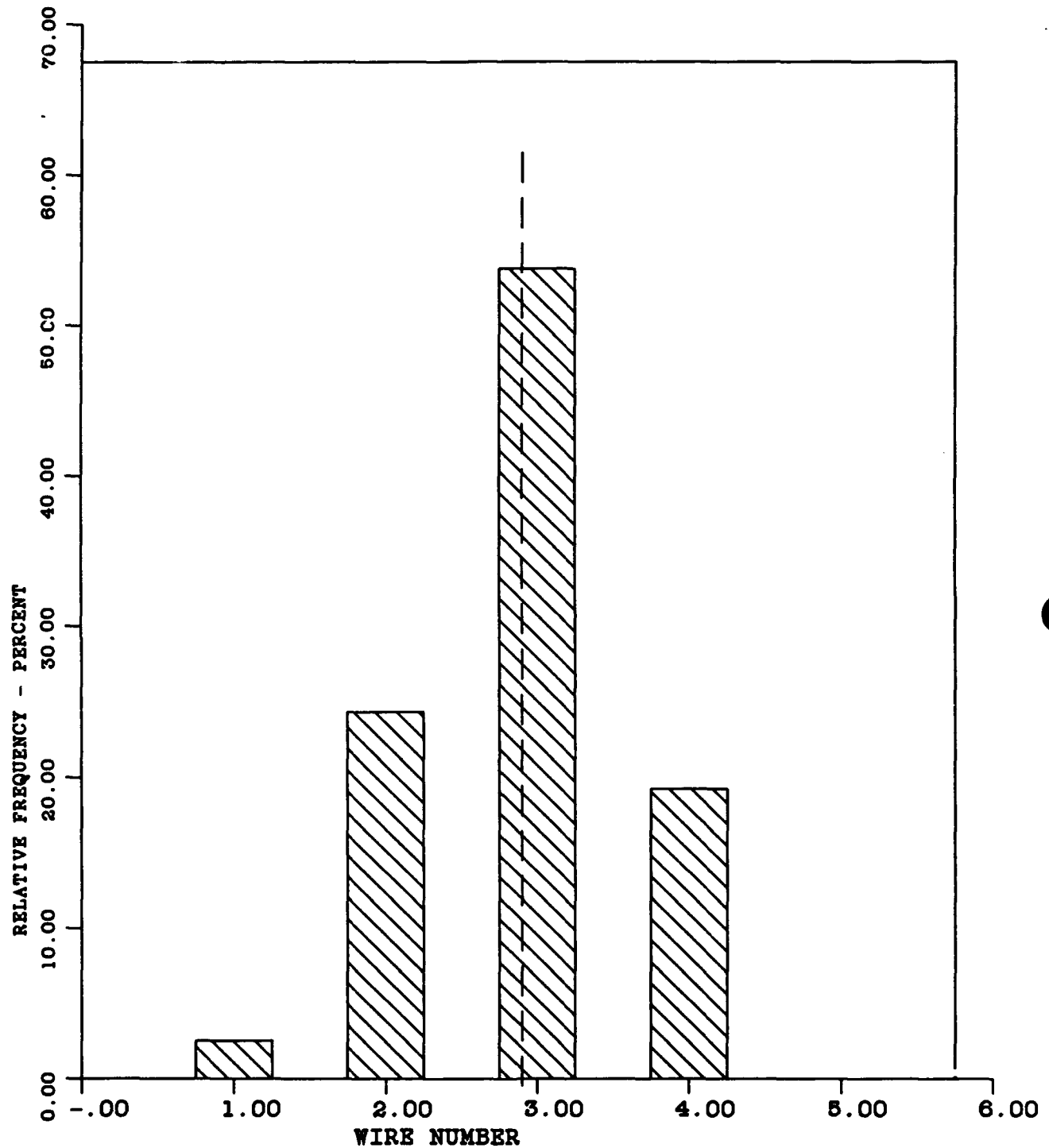


FIGURE H-37 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -3.10 DEGREES (.054 RADIANS)

A3--.05

S-.52 DEGREES (.009 RADIANS)

A4-3.02

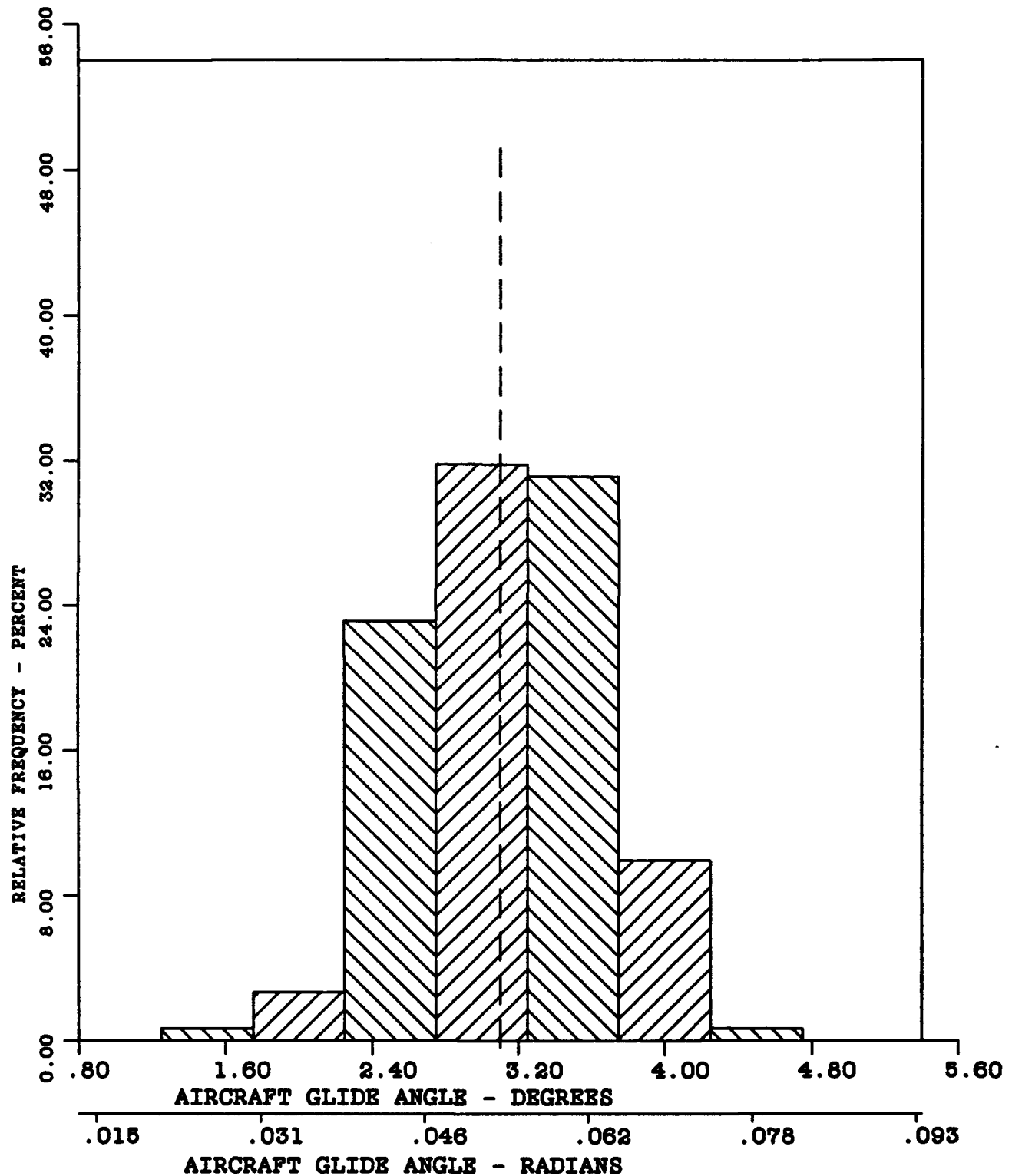


FIGURE H-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-147

 $\bar{X}$ -3.39 DEGREES (.059 RADIANS)

S-.44 DEGREES (.007 RADIANS)

A3--.33

A4-3.00

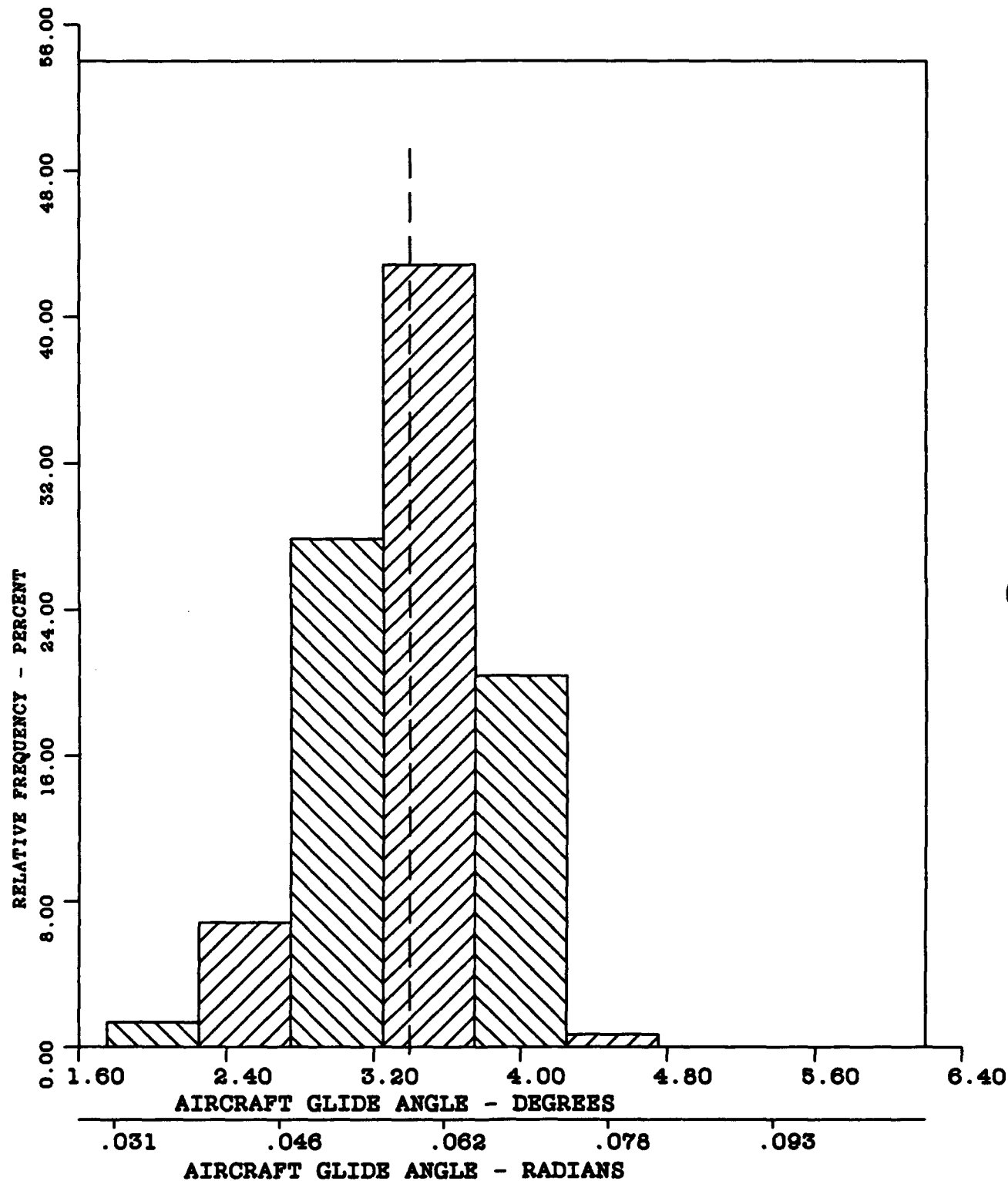


FIGURE H-39 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-147

 $\bar{X}$ -12.90 FEET (3.93 METRES)

A3--.05

S-2.50 FEET (.76 METRES)

A4-3.51

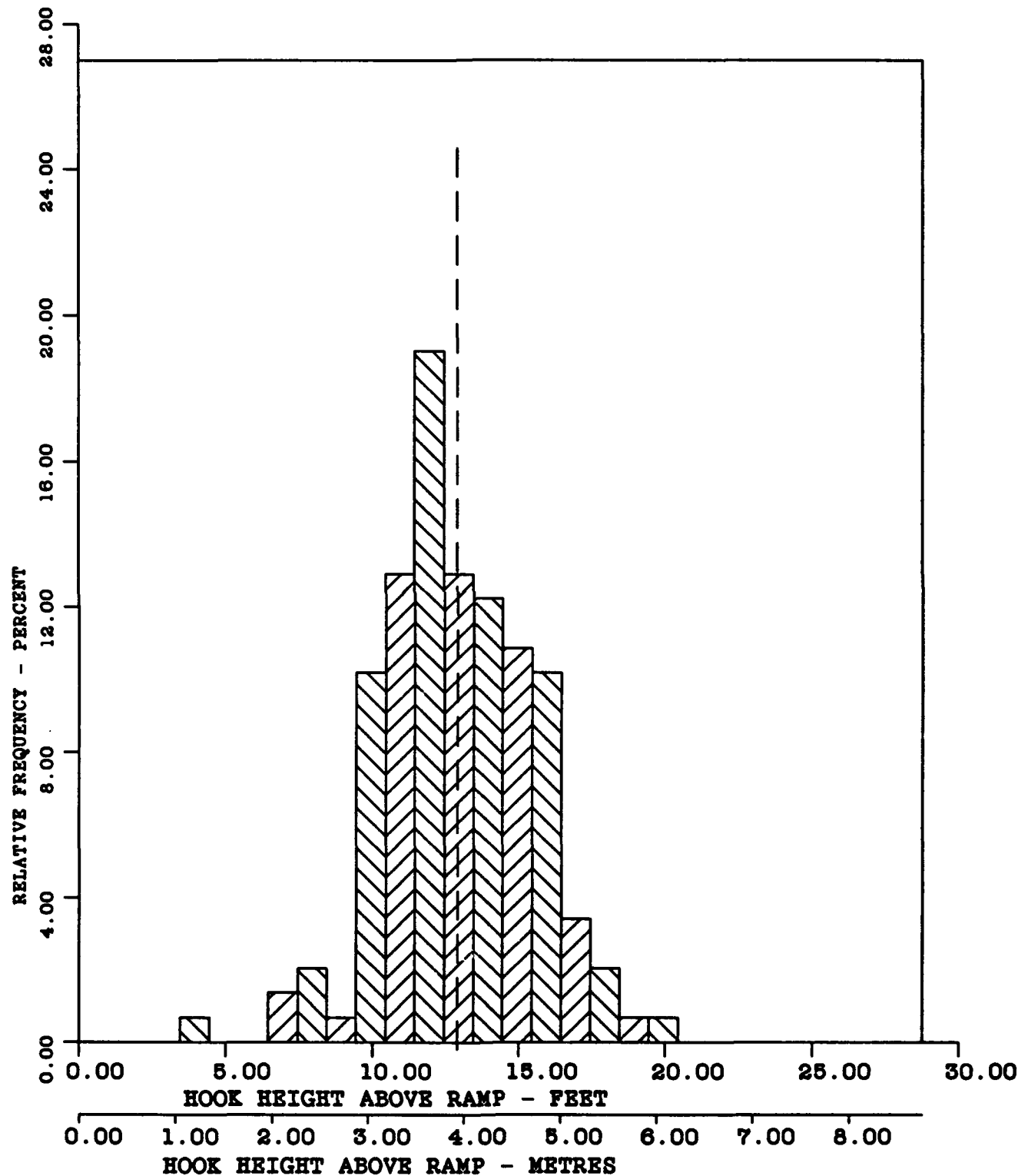


FIGURE H-40 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-147

 $\bar{X}$ -12.90 FEET (3.93 METRES)

A3--.05

S-2.50 FEET (.76 METRES)

A4-3.51

CURVE FITTED - NORMAL

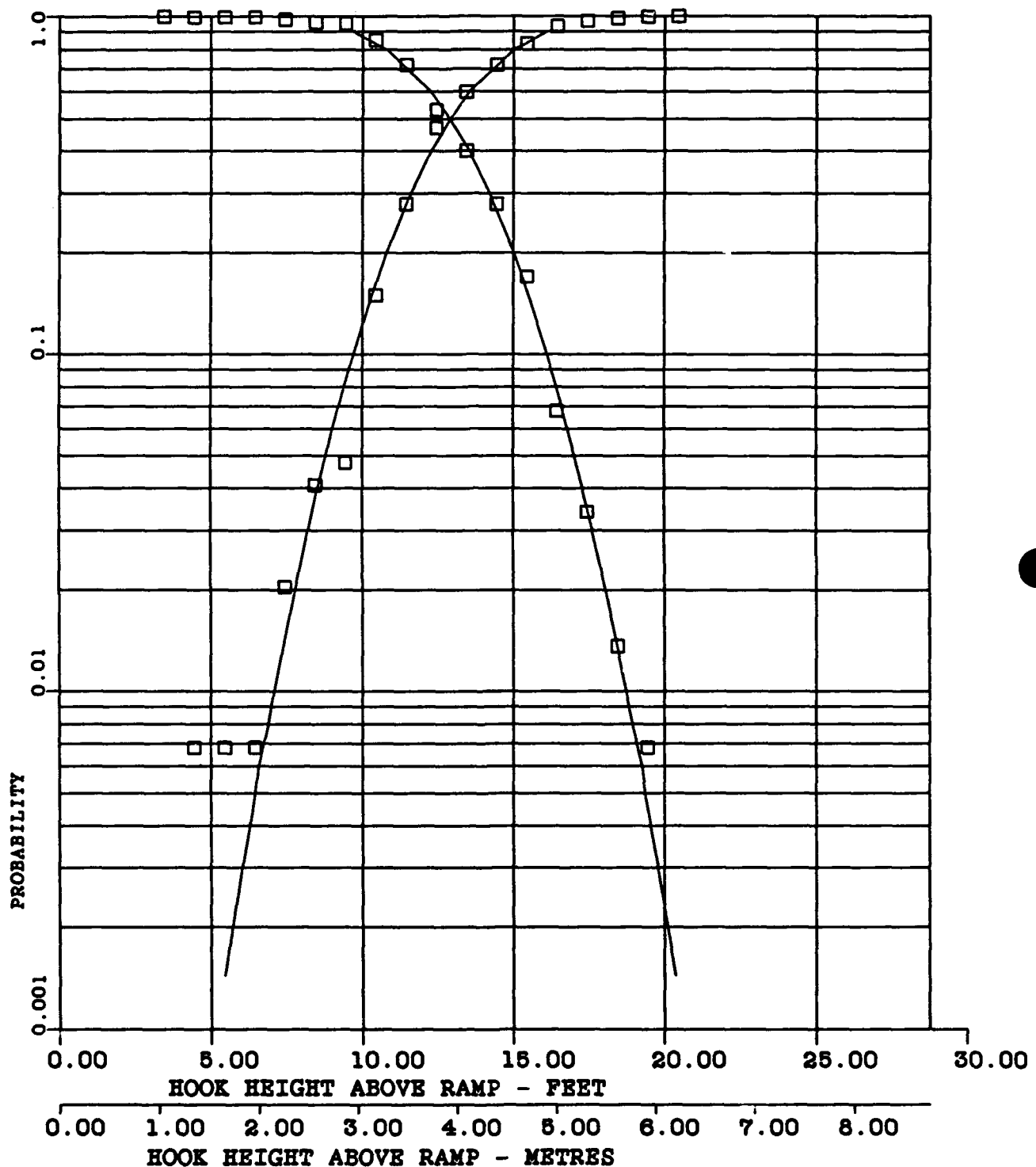


FIGURE H-41 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -119.20 KNOTS (61.32 METRES/SEC)

A3--.35

S-5.35 KNOTS (2.75 METRES/SEC)

A4-3.49

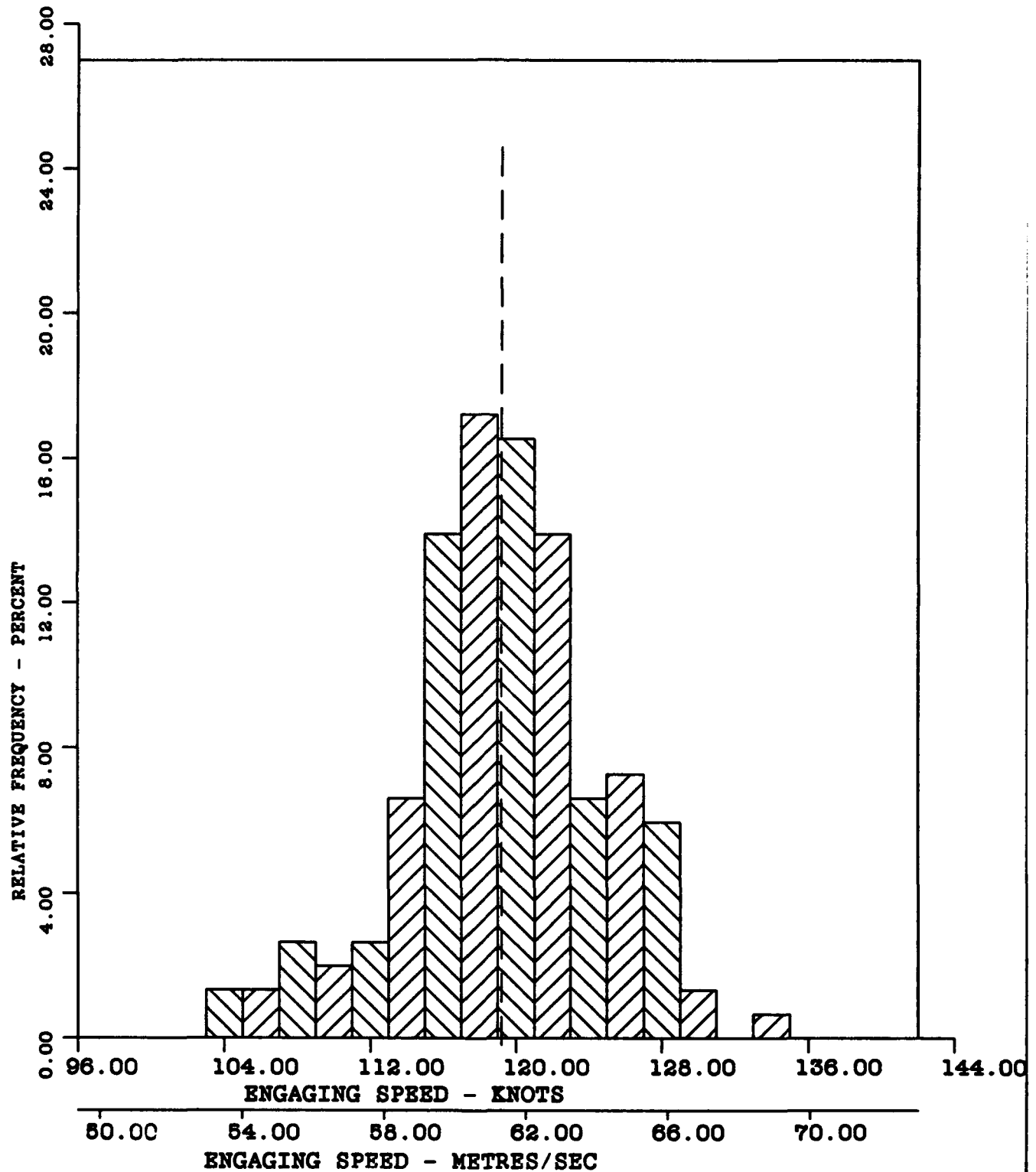


FIGURE H-42 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -119.20 KNOTS (61.32 METRES/SEC)

A3--.35

S=5.35 KNOTS (2.75 METRES/SEC)

A4=3.49

CURVE FITTED - NORMAL

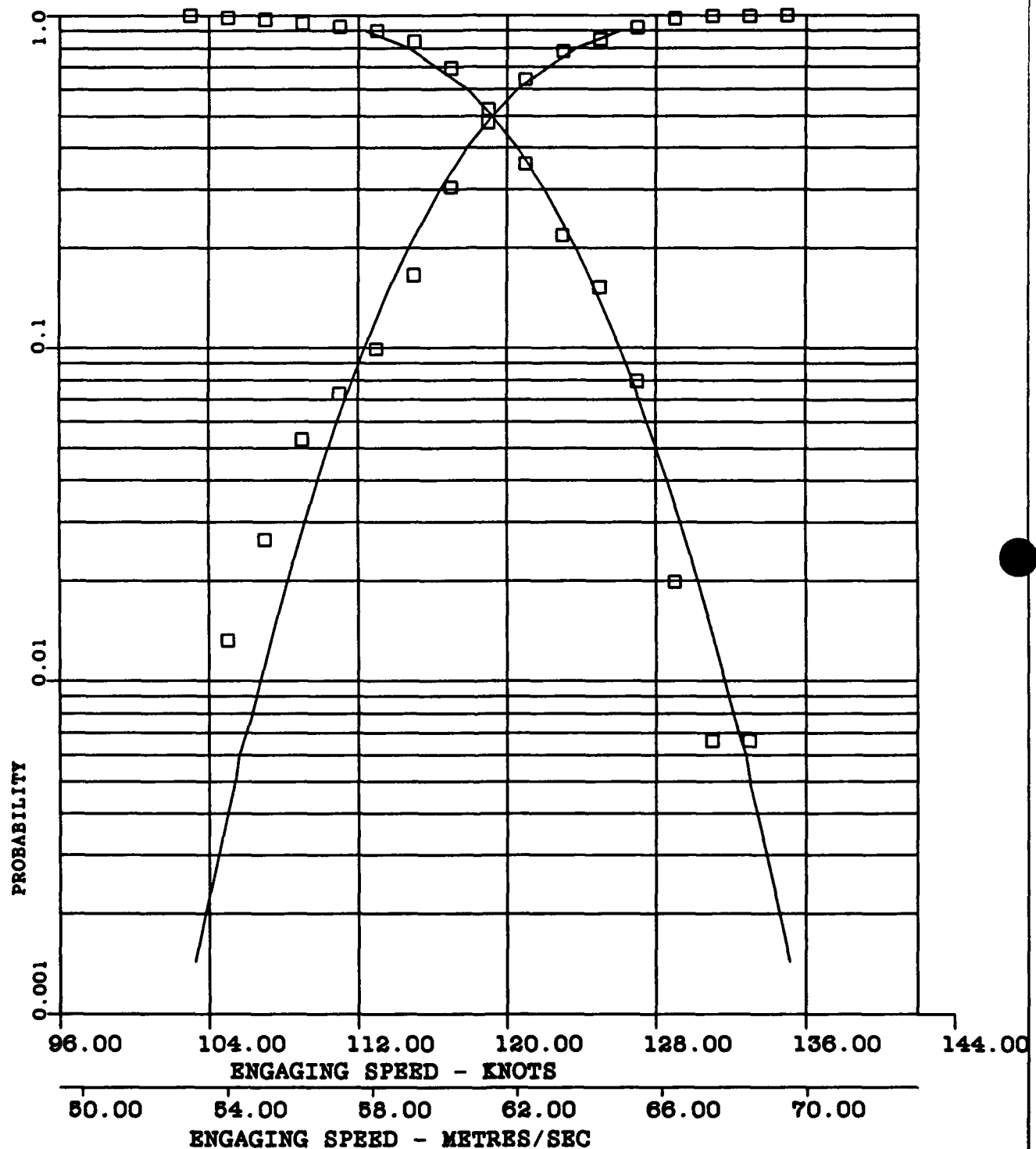


FIGURE H-43 PROBABILITY DISTRIBUTION OF ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=141

 $\bar{X}$ =134.34 KNOTS (69.10 METRES/SEC)

A3=-.47

S=2.62 KNOTS (1.35 METRES/SEC)

A4=2.37

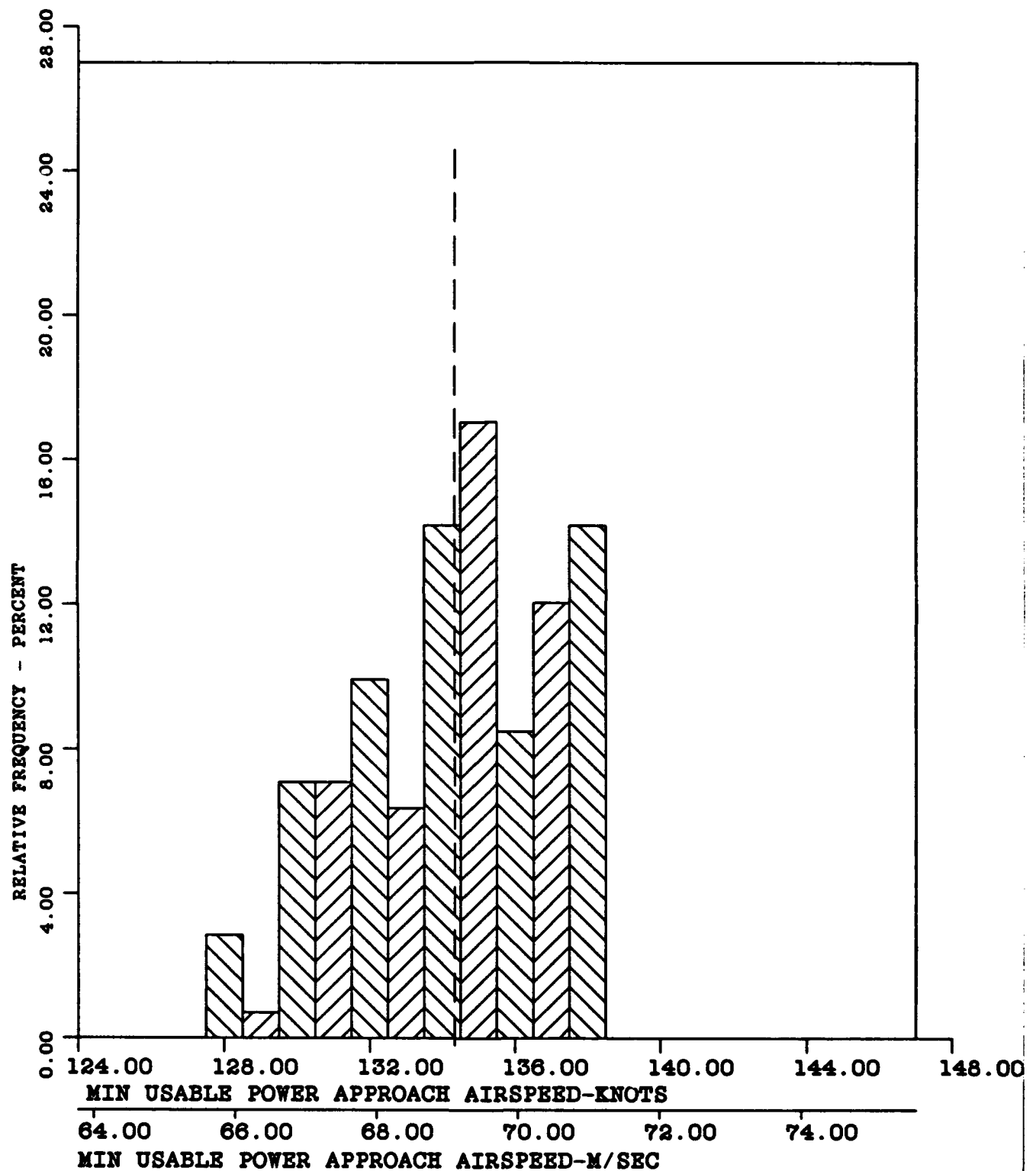


FIGURE H-44 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-141

 $\bar{X}$ -1.07

S-.03

A3--.17

A4-3.92

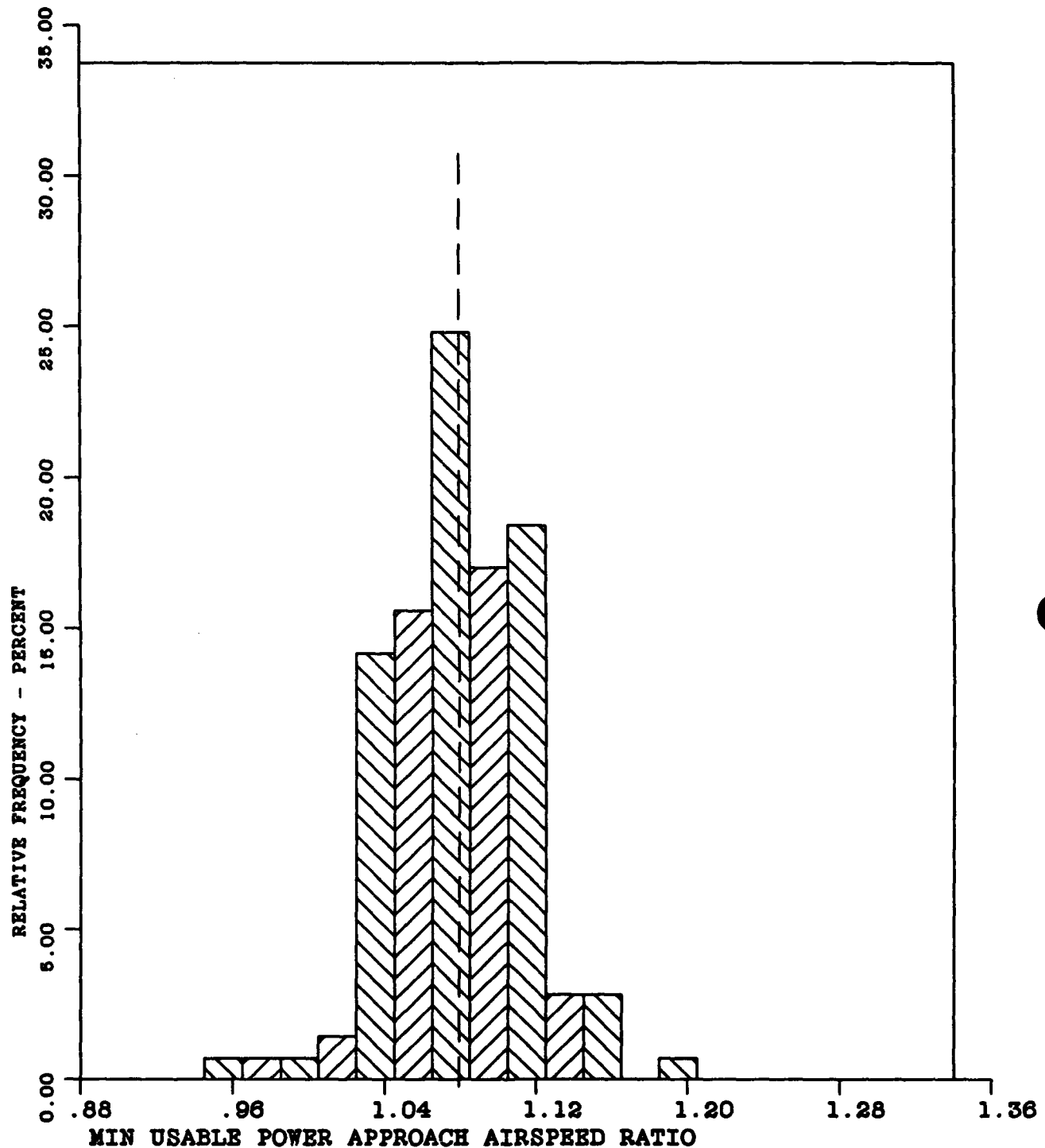


FIGURE H-45 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-128

 $\bar{X}$ --.49 DEGREES (-.008 RADIANS)

A3-1.41

S-.62 DEGREES (.010 RADIANS)

A4-7.45

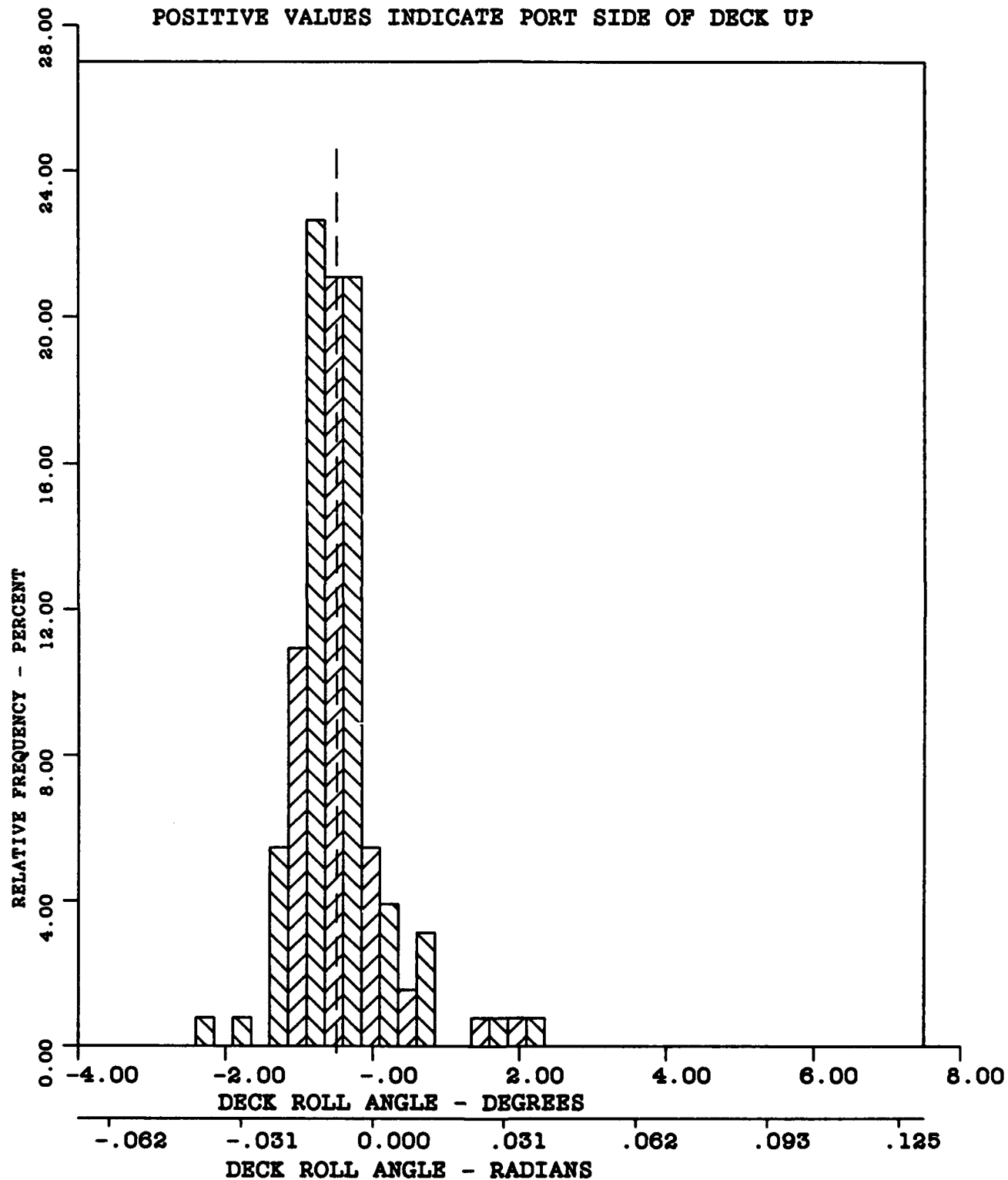


FIGURE H-46 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

PRESNEL LENS SETTING-3.80 DEGREES (.061 RADIANS)

N-128

 $\bar{X}$  = -.49 DEGREES (-.008 RADIANS)

A3-1.41

S = .62 DEGREES (.010 RADIANS)

A4-7.45

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

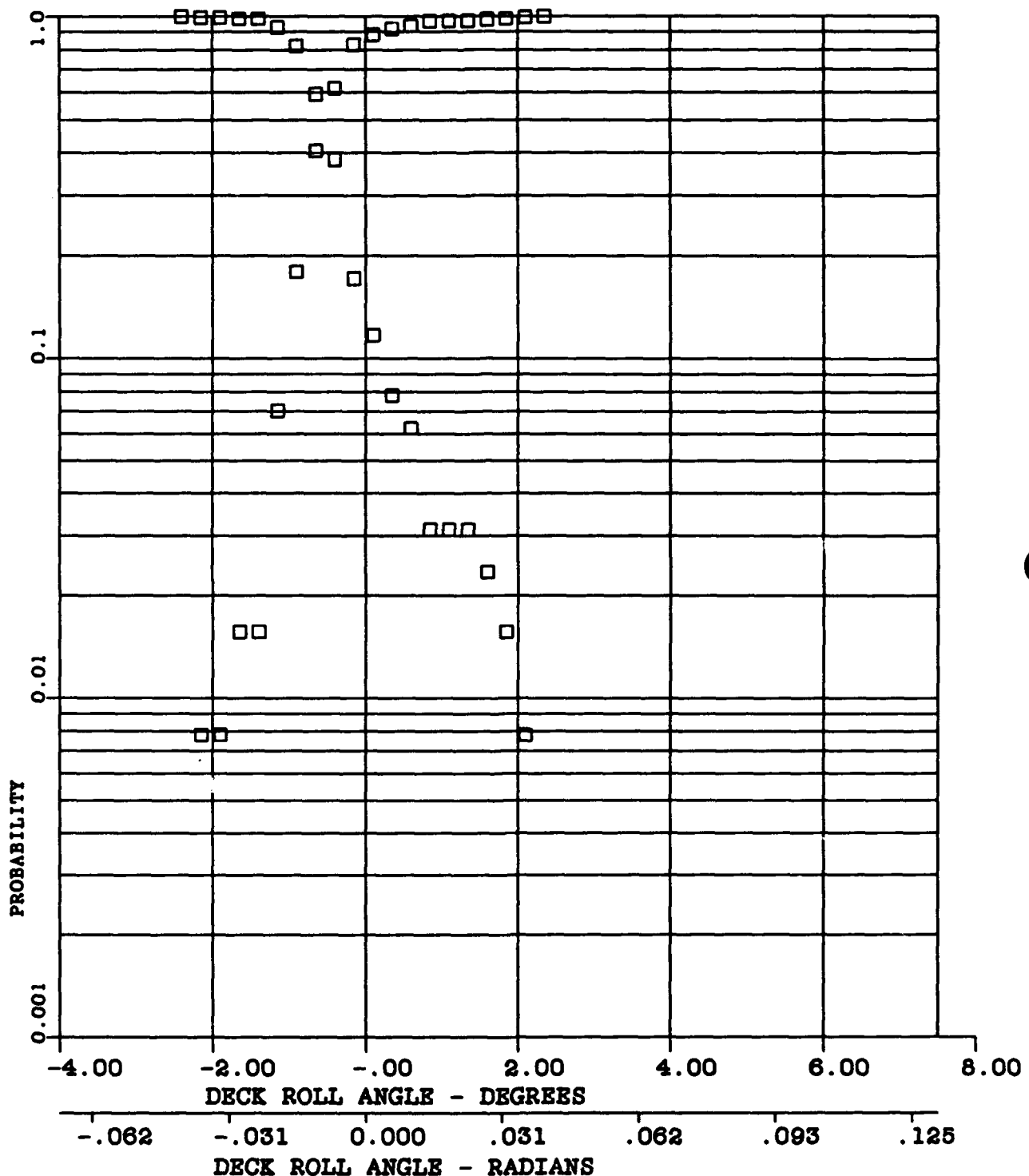


FIGURE H-47 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-128

 $\bar{X}$  = -.21 DEGREES (-.003 RADIANS)

A3 = -.48

S = .17 DEGREES (.002 RADIANS)

A4 = 3.98

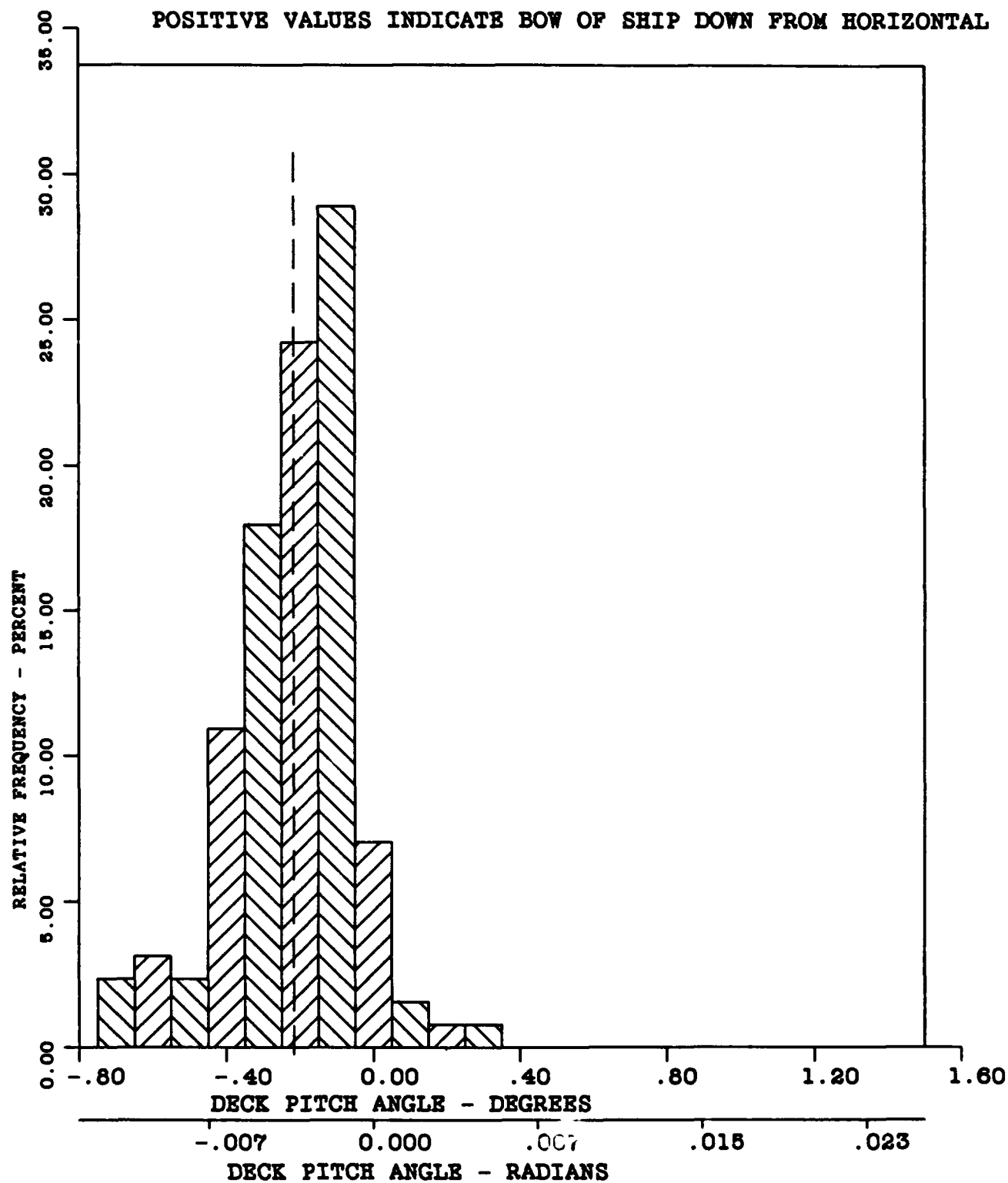


FIGURE H-48 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-128

 $\bar{X}$  = -.21 DEGREES (-.003 RADIANS)

A3 = -.48

S = .17 DEGREES (.002 RADIANS)

A4 = 3.98

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

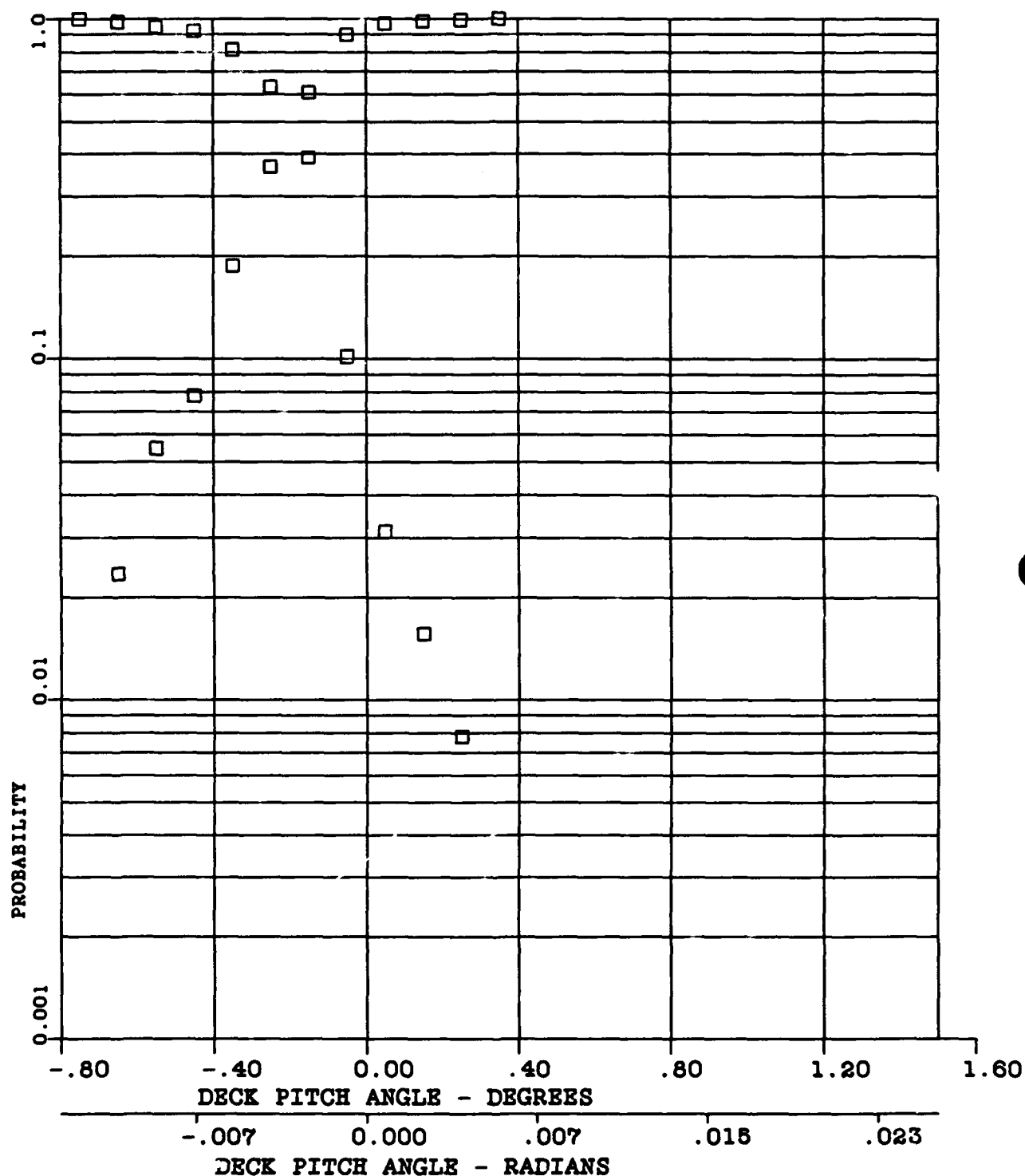


FIGURE H-49 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

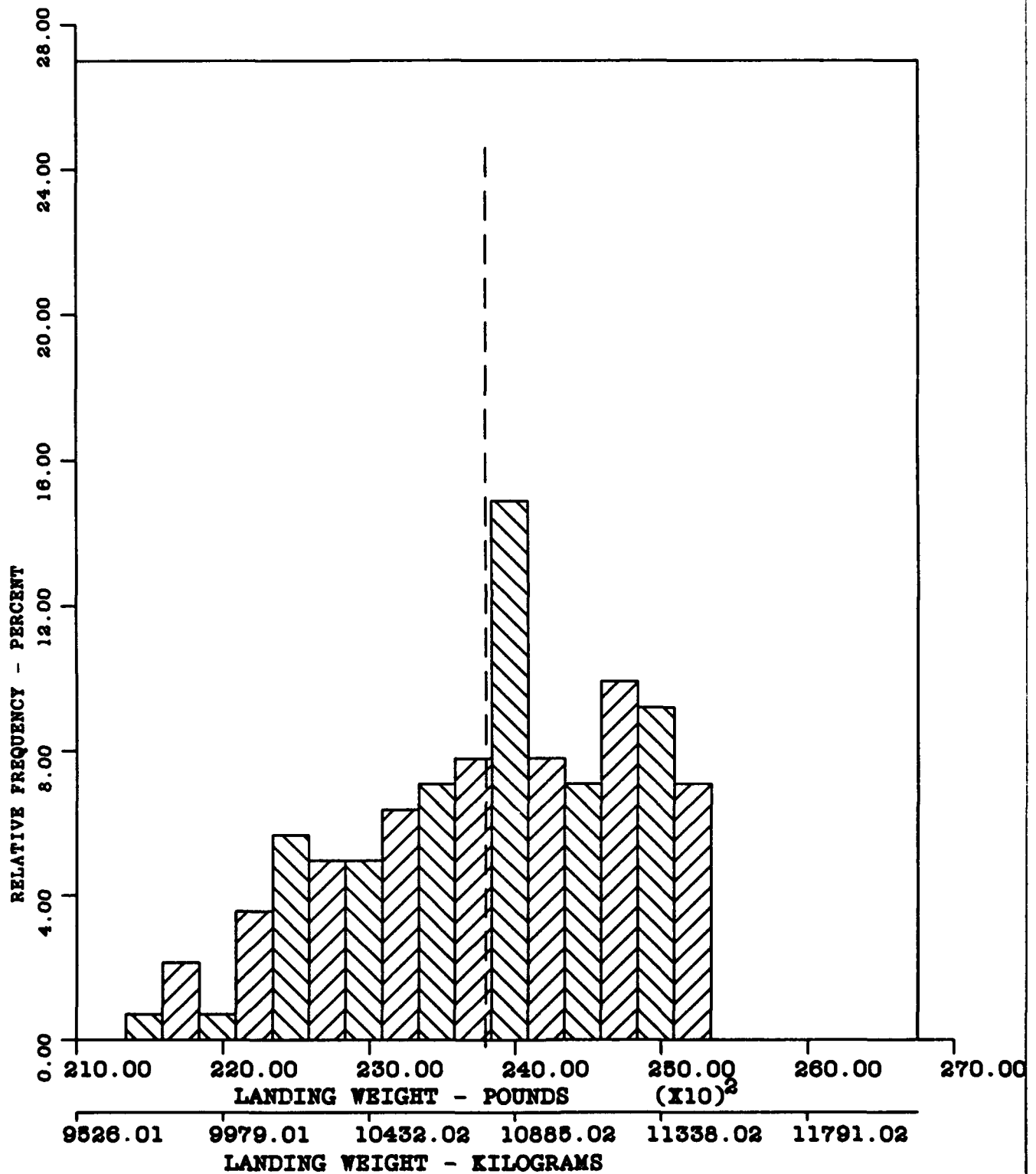
N-141

 $\bar{X}$ -23798.74 POUNDS (10795.11 KILOGRAMS)

A3--.43

S-927.18 POUNDS (420.57 KILOGRAMS)

A4-2.33

FIGURE H-50 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -1.92 DEG/SEC (.033 RAD/SEC)

A3-.05

S-5.40 DEG/SEC (.094 RAD/SEC)

A4-4.65

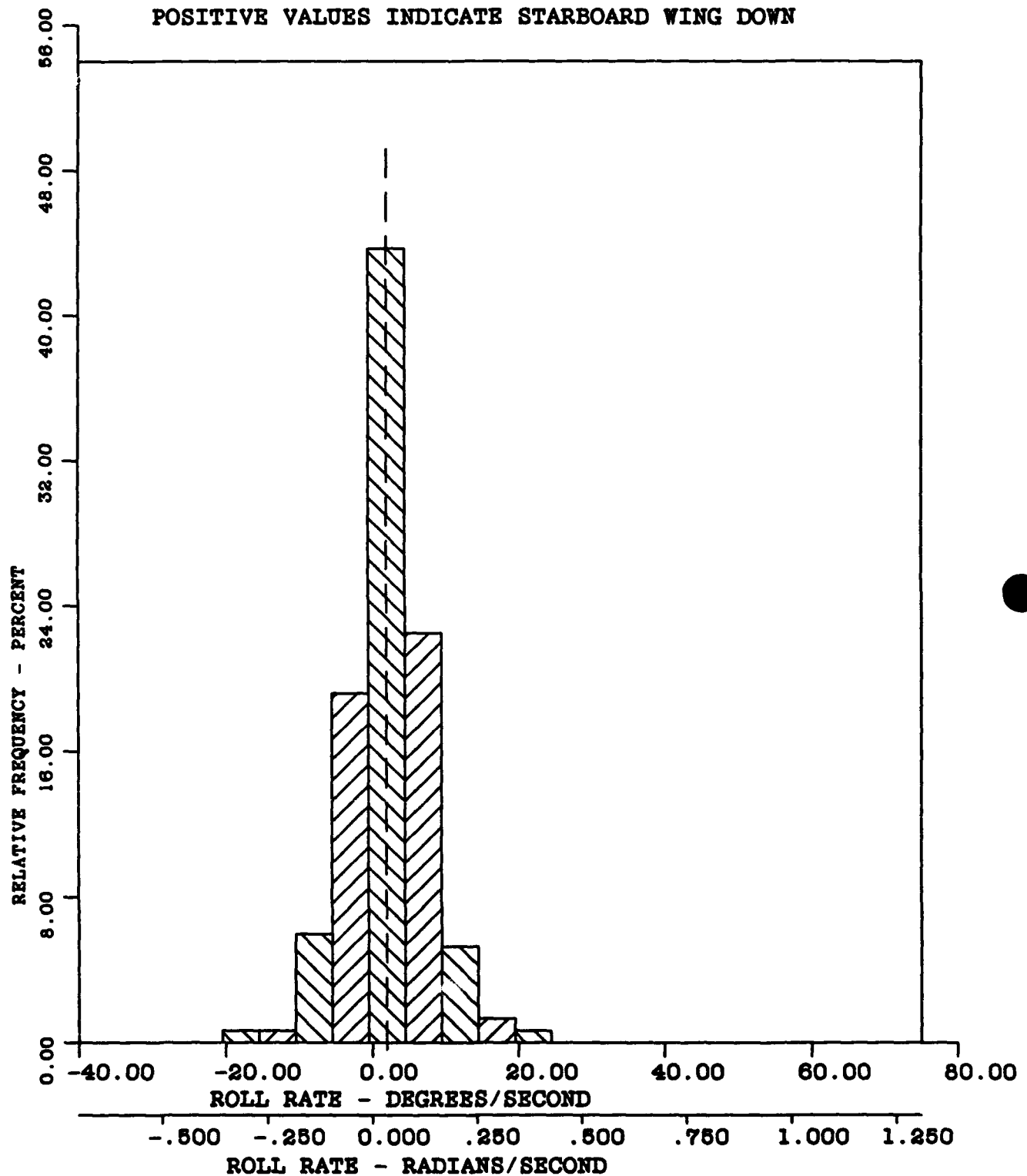


FIGURE H-51 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=151

 $\bar{X}$ =-1.92 DEG/SEC (.033 RAD/SEC)

A3=.05

S=5.40 DEG/SEC (.094 RAD/SEC)

A4=4.65

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

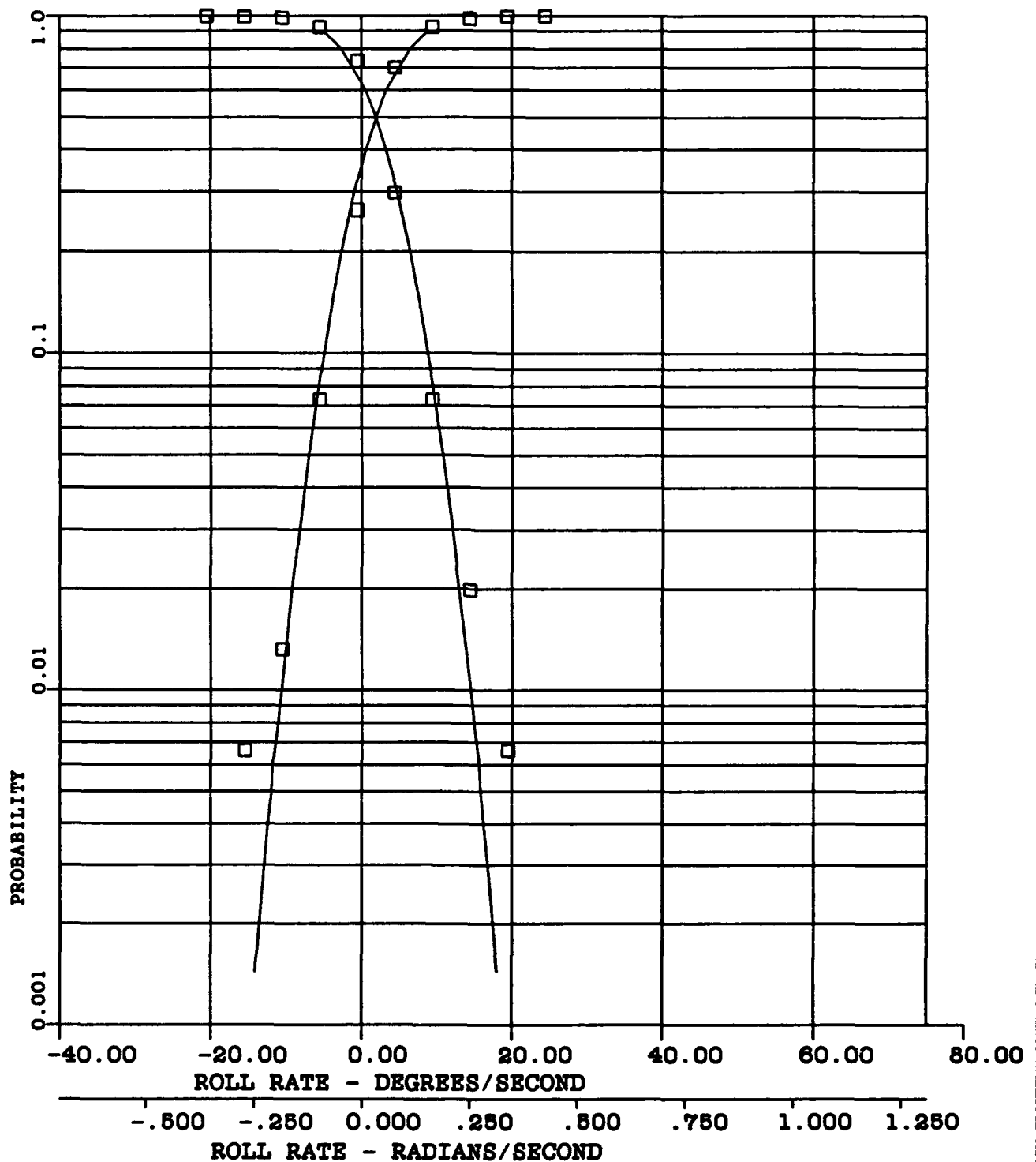


FIGURE H-52 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -1.03 DEG/SEC (.018 RAD/SEC)

A3--.05

S-2.99 DEG/SEC (.052 RAD/SEC)

A4-3.32

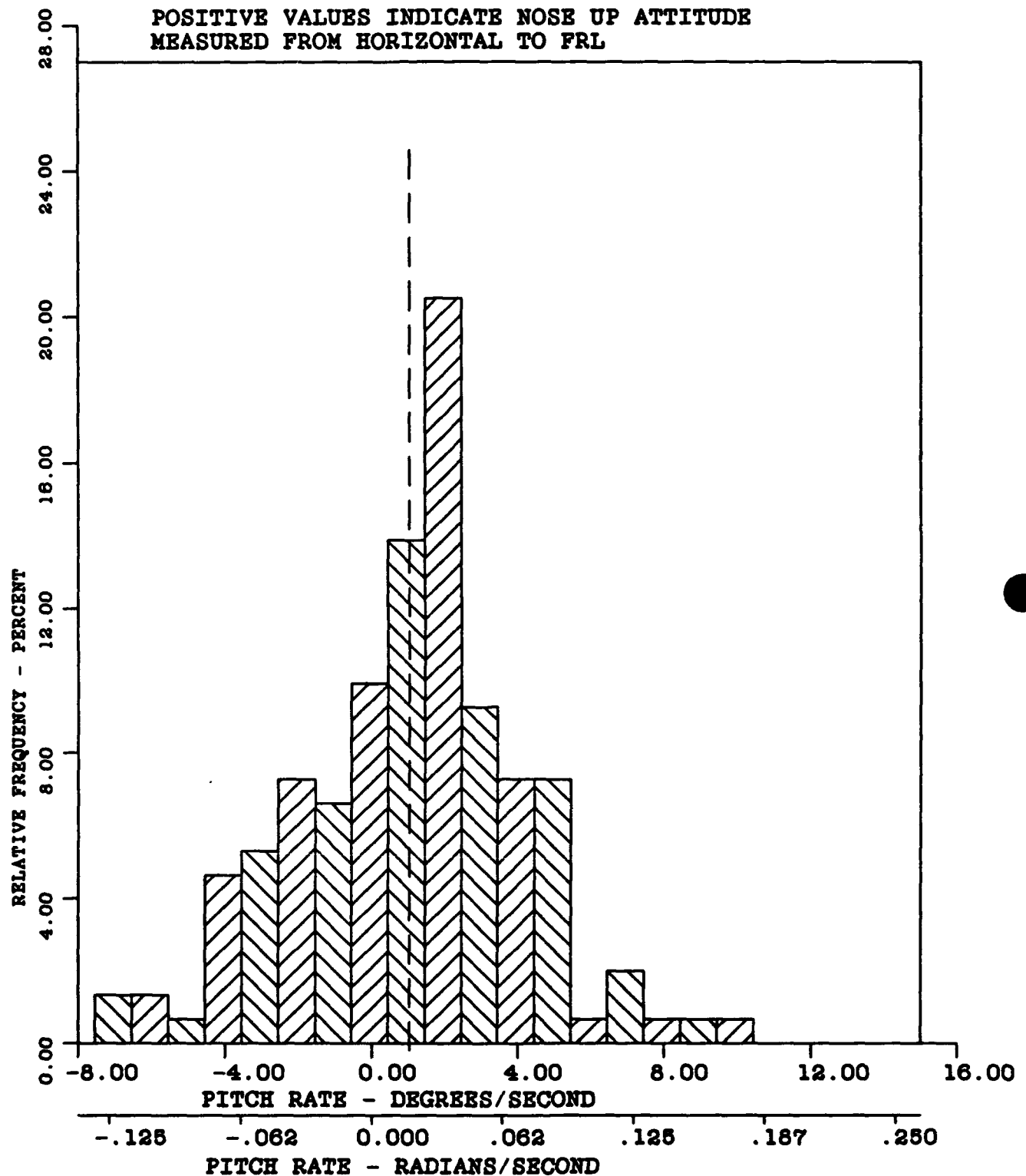


FIGURE H-53 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -1.03 DEG/SEC (.018 RAD/SEC)

A3--.05

S-2.99 DEG/SEC (.052 RAD/SEC)

A4-3.32

CURVE FITTED - NORMAL

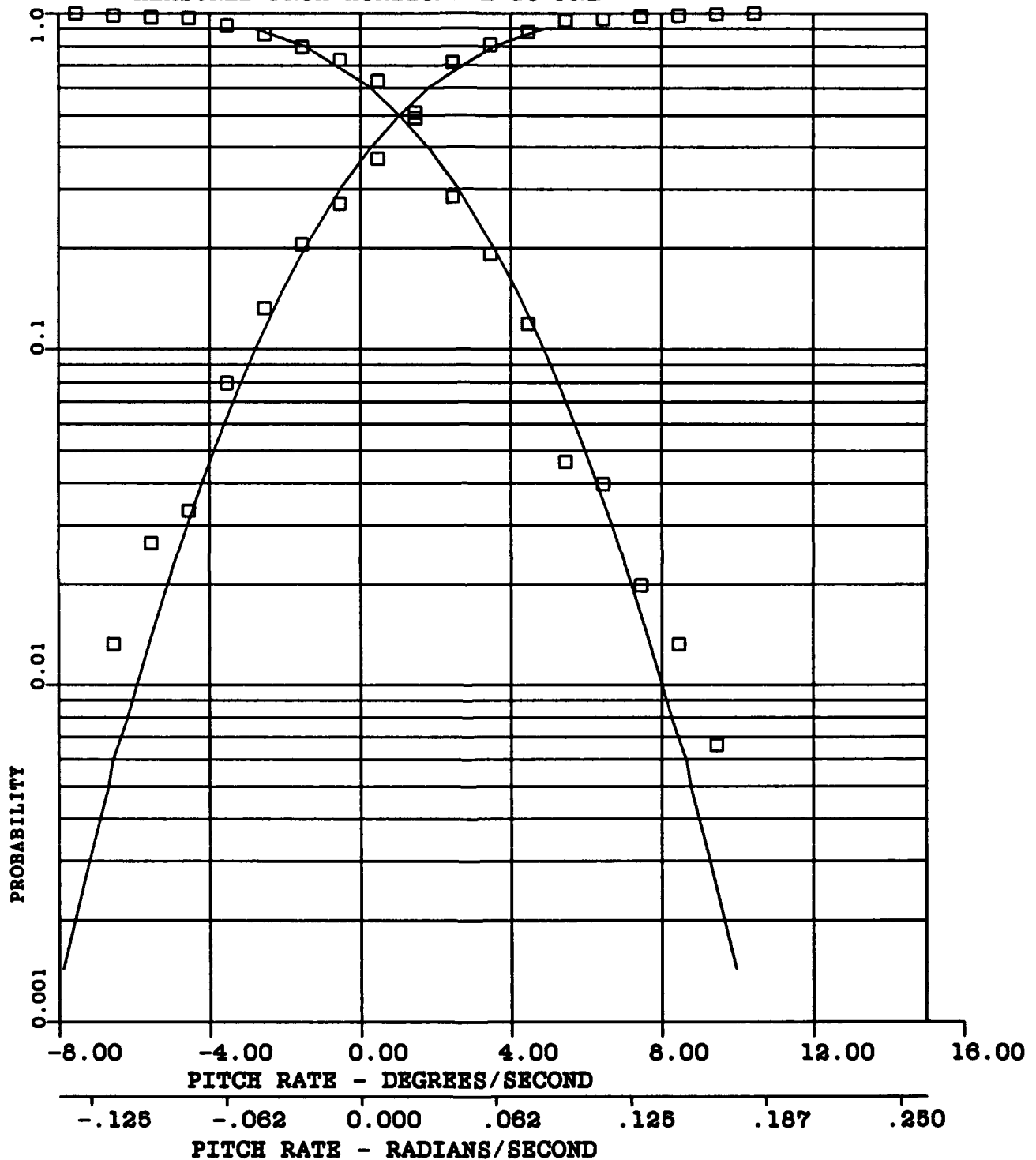
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE H-54 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -3.44 DEGREES (-.060 RADIANS)

A3--.64

S-.79 DEGREES (.013 RADIANS)

A4-7.03

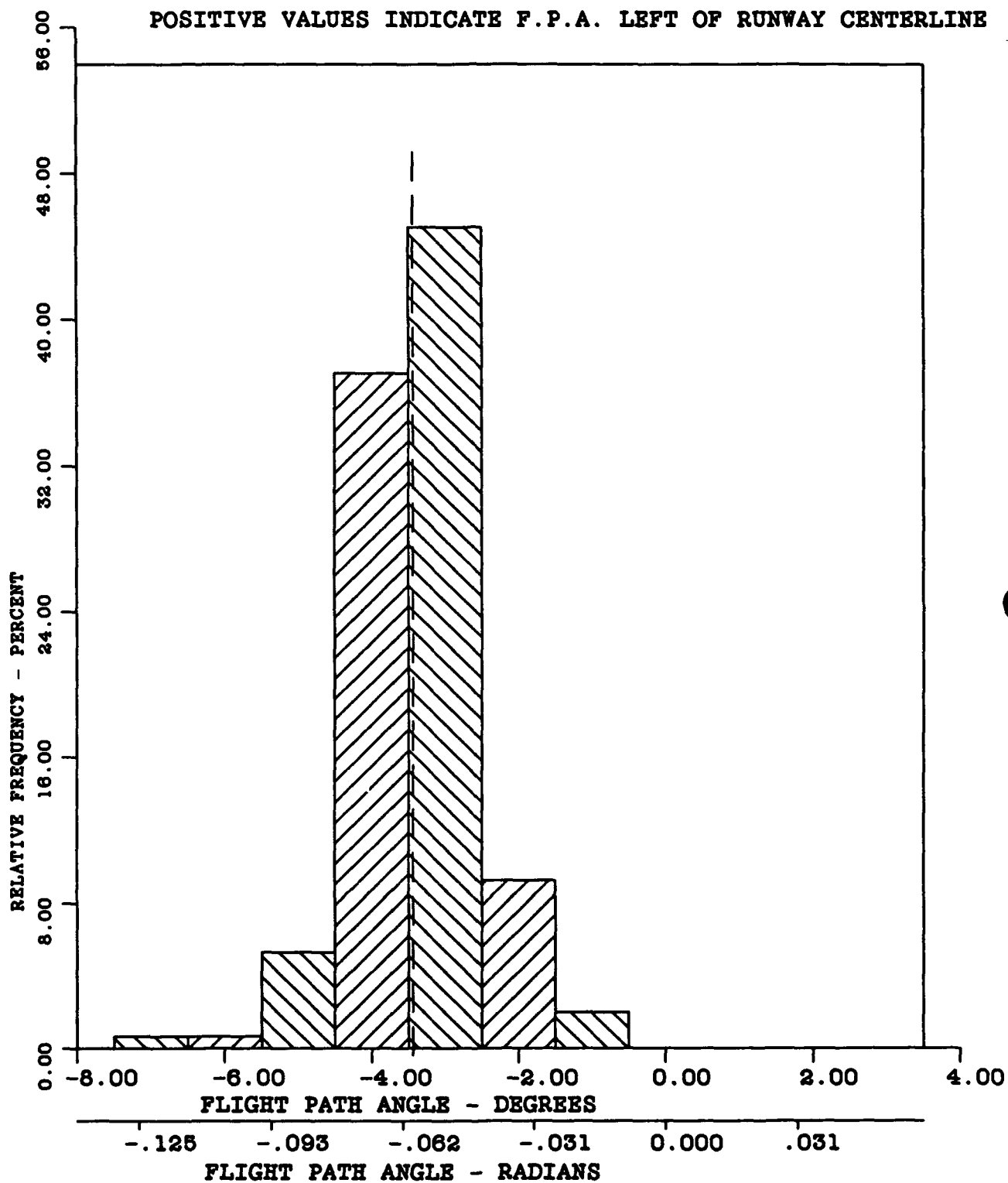


FIGURE H-55 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=151

 $\bar{X}$ =-3.44 DEGREES (-.060 RADIANS)

A3=-.64

S=.79 DEGREES (.013 RADIANS)

A4=7.03

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

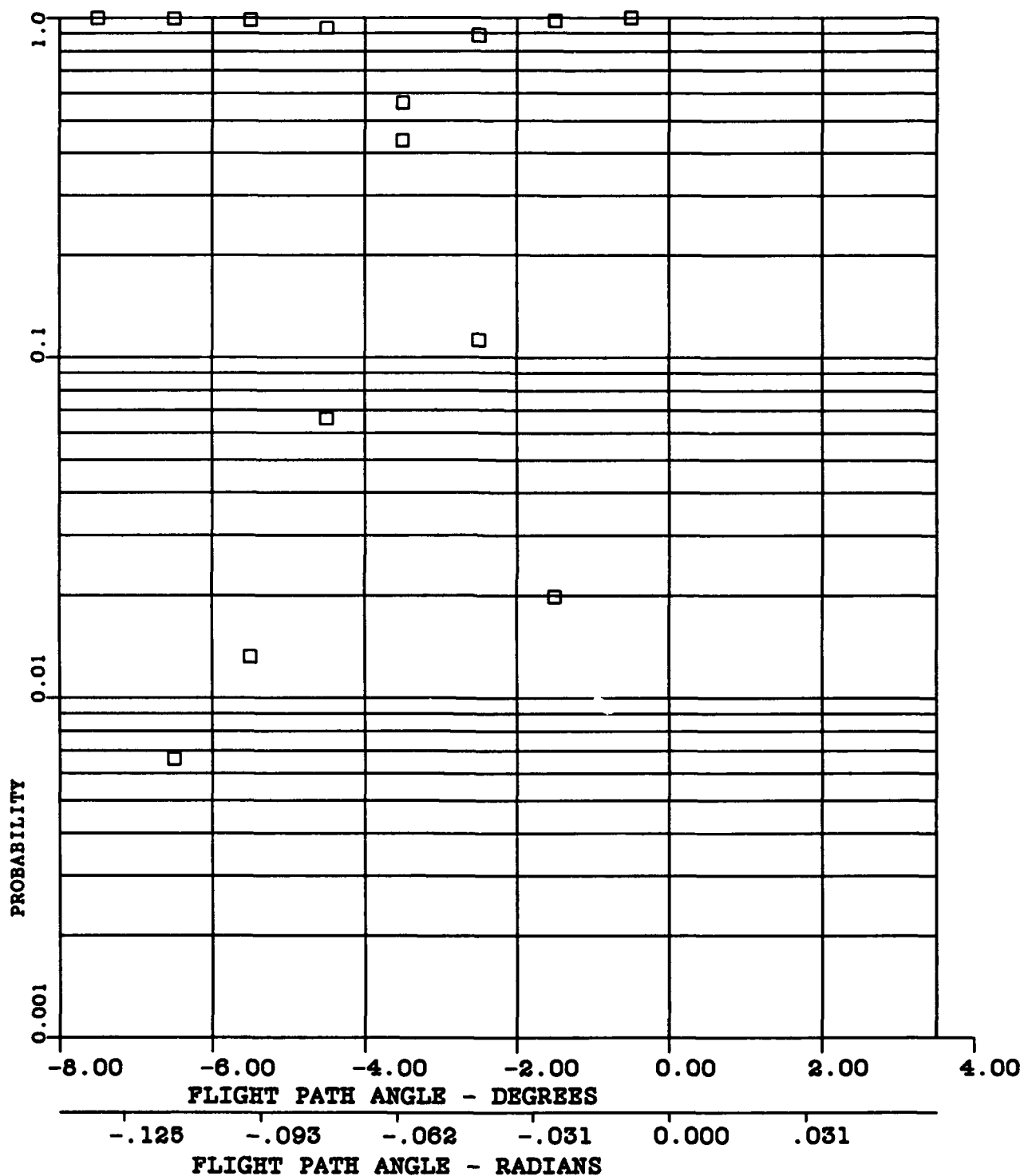


FIGURE H-56 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -1.17 DEGREES (.020 RADIANS)

A3-.56

S-2.86 DEGREES (.049 RADIANS)

A4-3.19

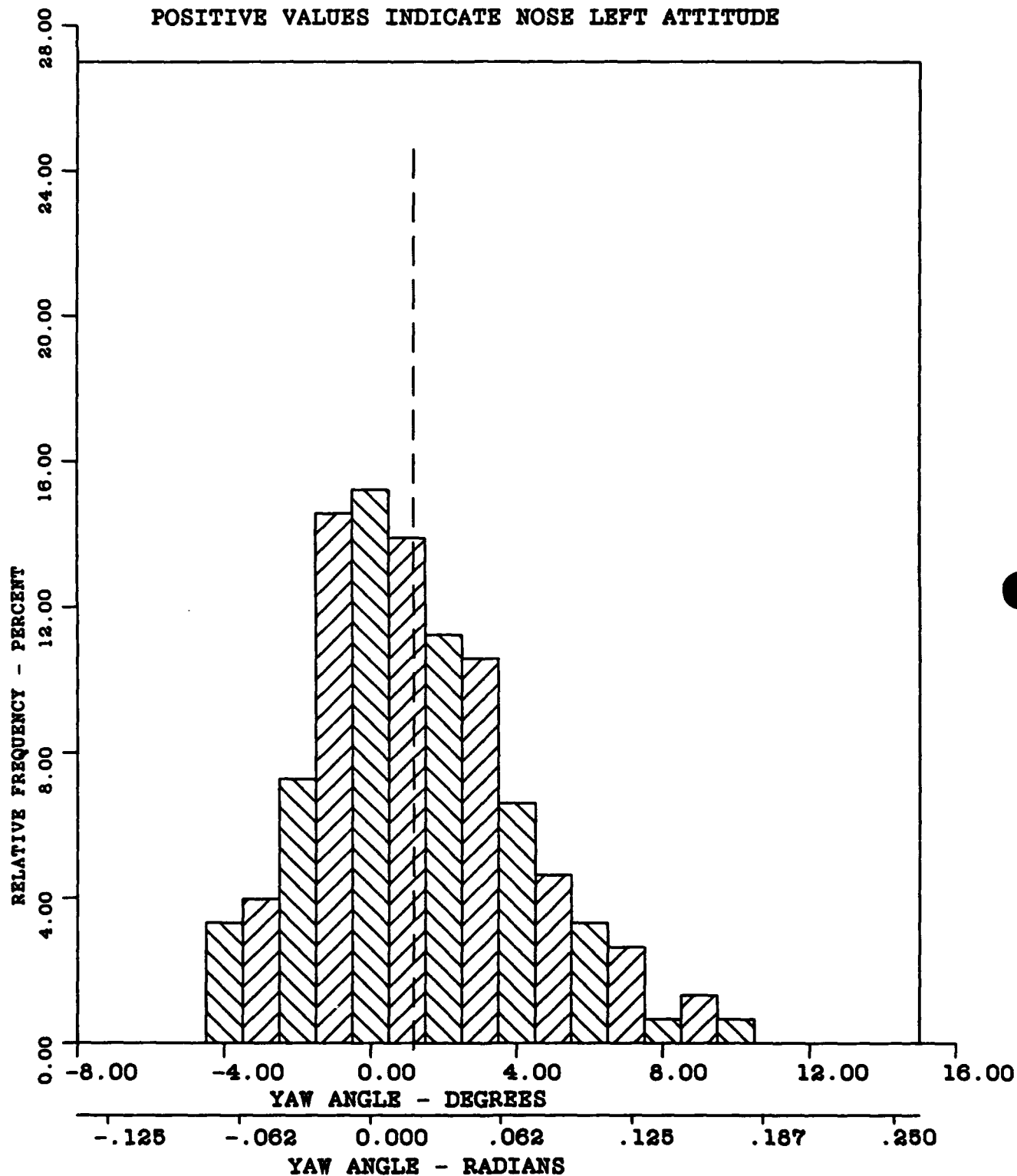


FIGURE H-57 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-151

 $\bar{X}$ -1.17 DEGREES (.020 RADIANS)

A3-.56

S-2.86 DEGREES (.049 RADIANS)

A4-3.19

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

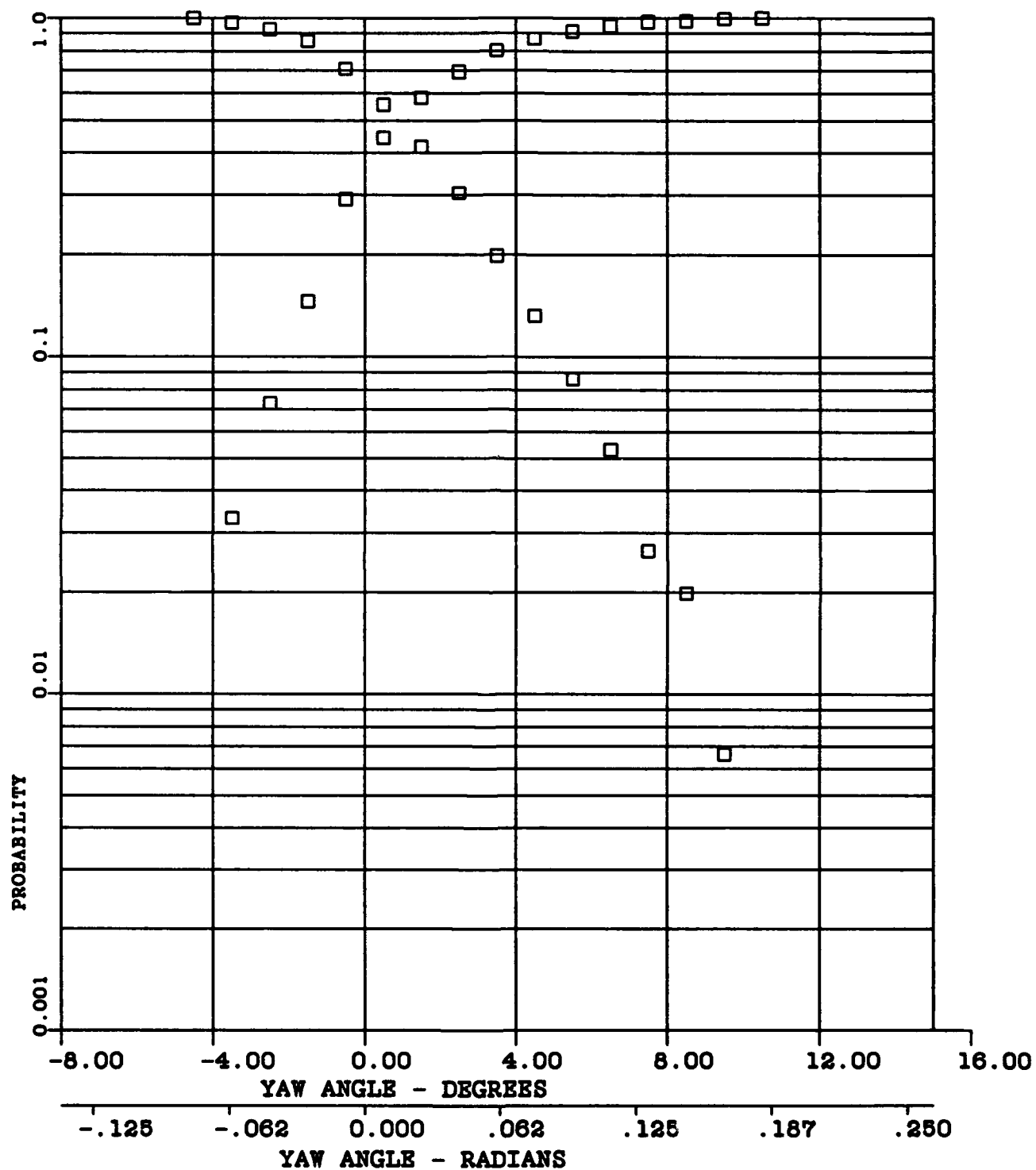


FIGURE H-58 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX I**

**A-7E AIRCRAFT**

**NIGHT CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

Appendix I:

Frequency and Probability Distributions,  
A-7E Aircraft, Night Landings

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MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -28.71 KNOTS (14.77 METRES/SEC)

A3--0.02

S- 3.71 KNOTS (1.91 METRES/SEC)

A4-1.16

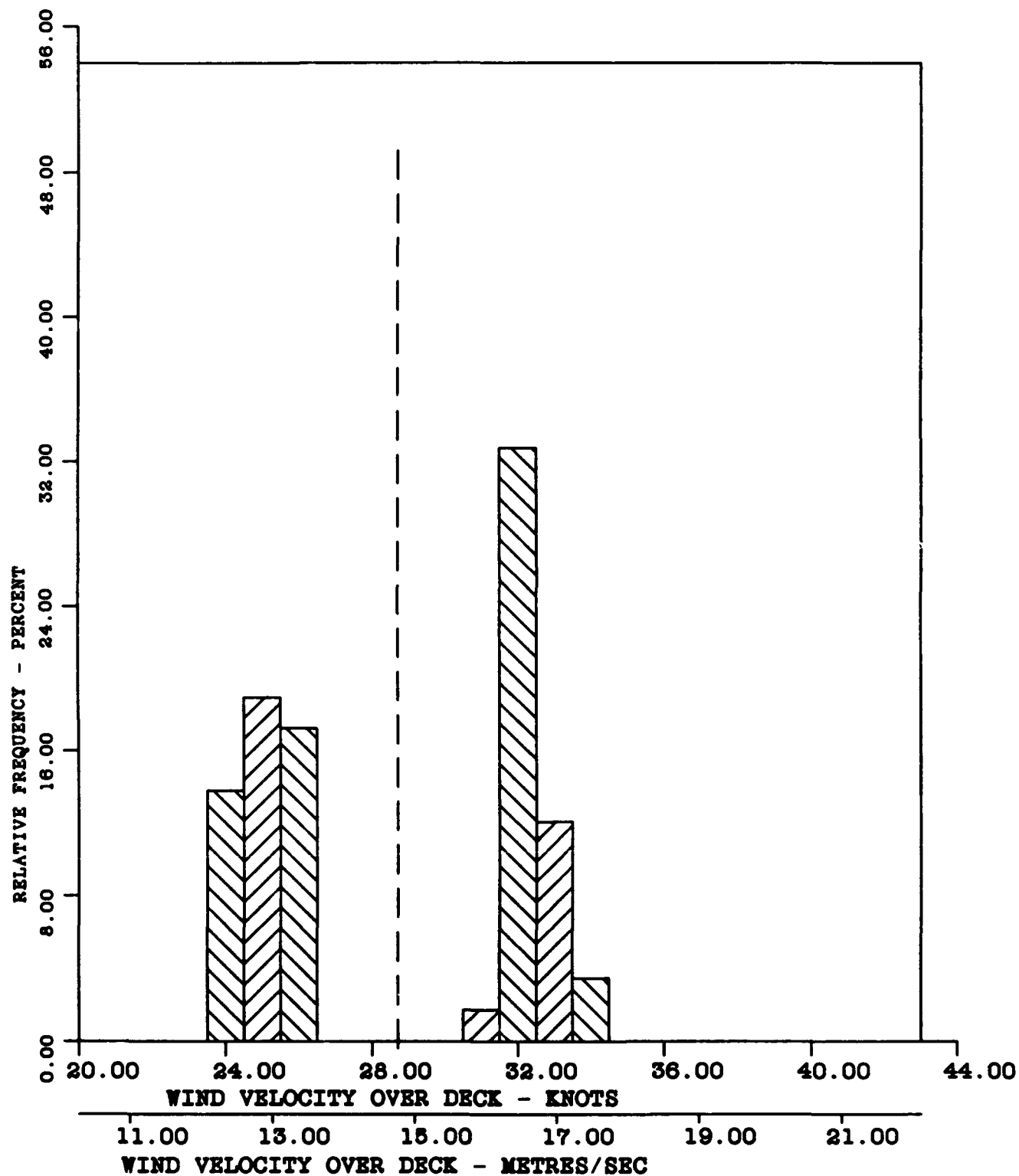


FIGURE 1-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -28.71 KNOTS (14.77 METRES/SEC)

A3--0.02

S- 3.71 KNOTS (1.91 METRES/SEC)

A4-1.16

CURVE FITTED - NORMAL

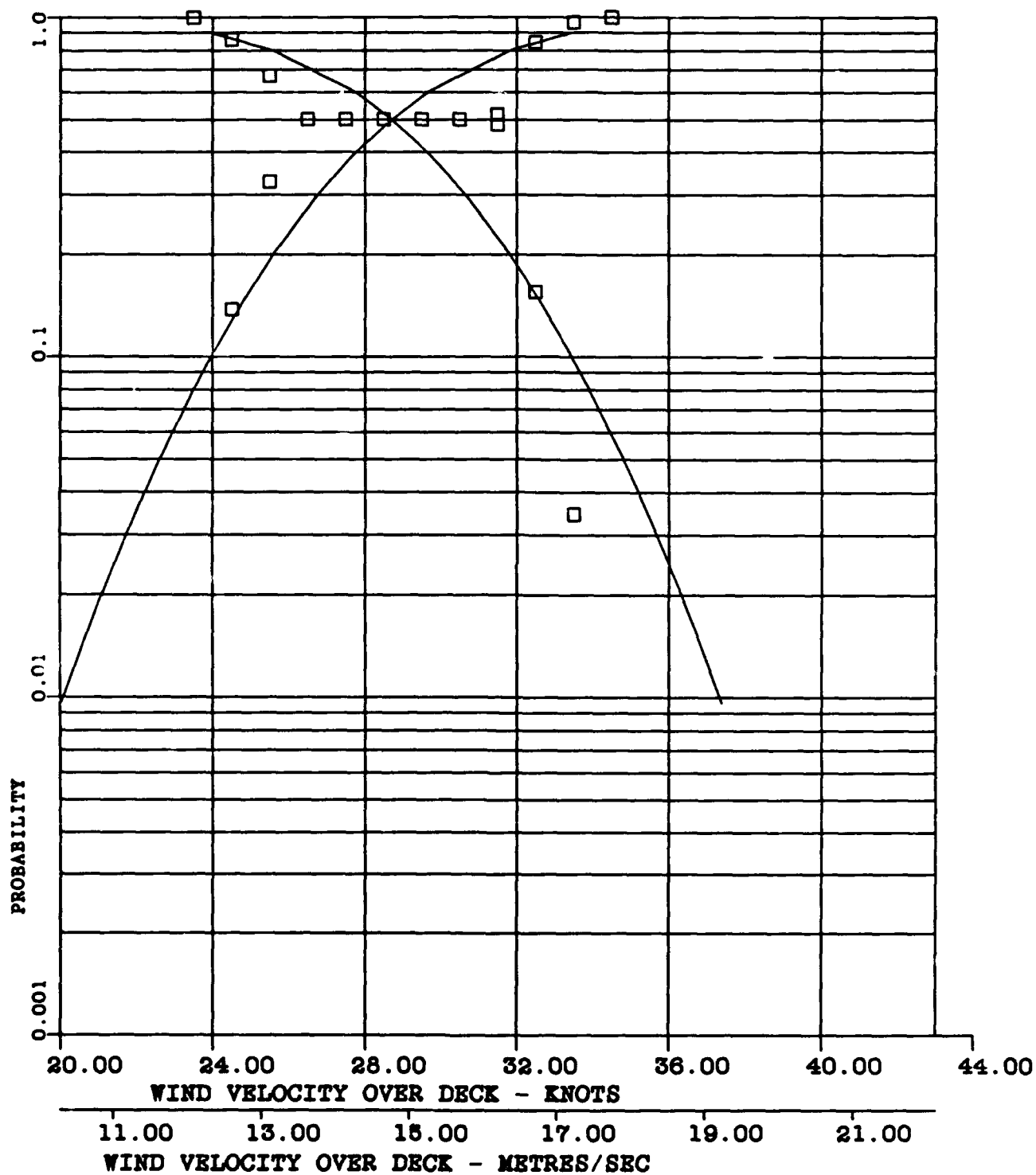


FIGURE 1-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -140.36 KNOTS (72.20 METRES/SEC)

A3-1.20

S- 9.49 KNOTS (4.88 METRES/SEC)

A4-5.34

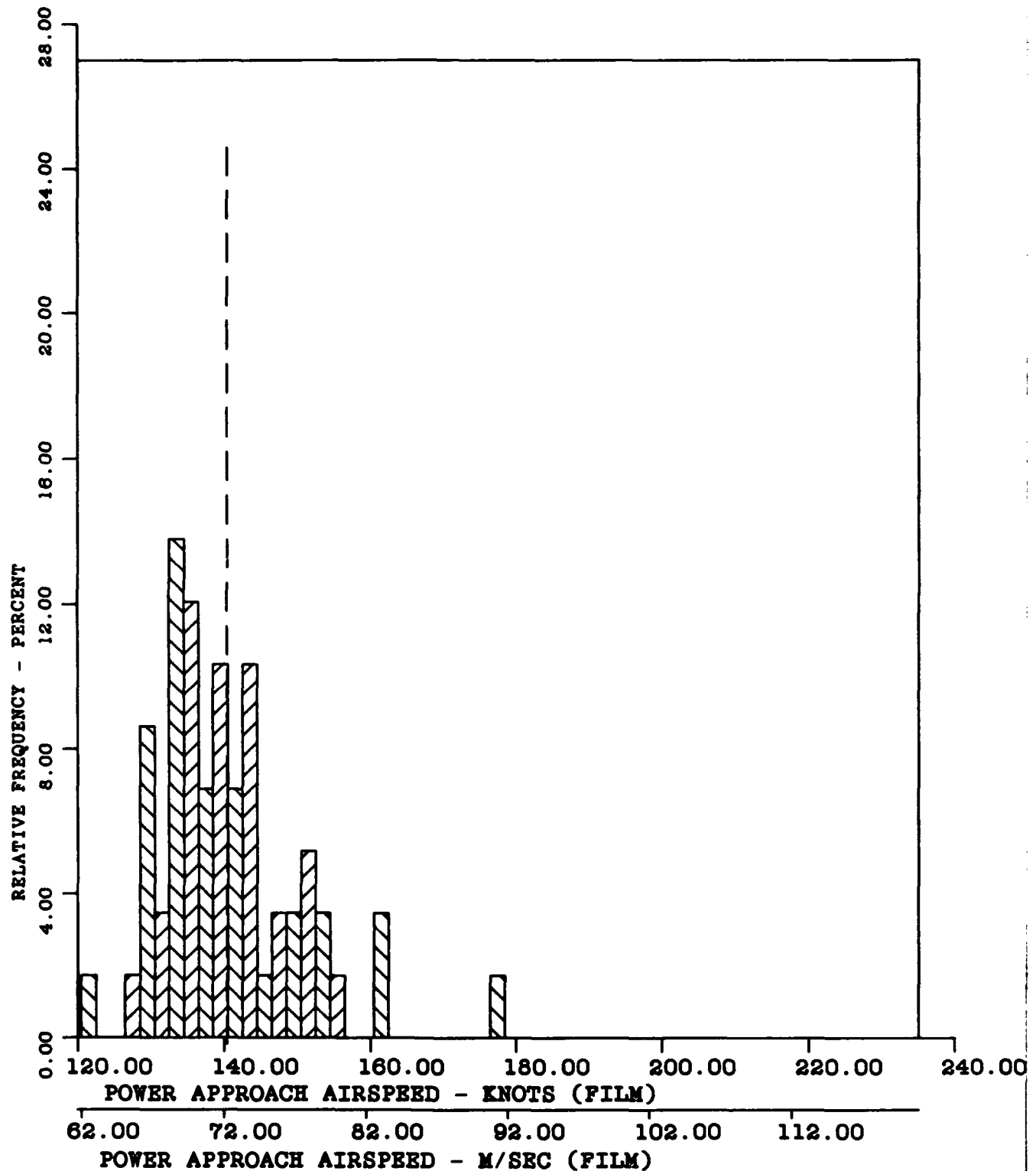


FIGURE 1-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -140.36 KNOTS (72.20 METRES/SEC)

A3-1.20

S- 9.49 KNOTS (4.88 METRES/SEC)

A4-5.34

CURVE FITTED - PEARSON TYPE III

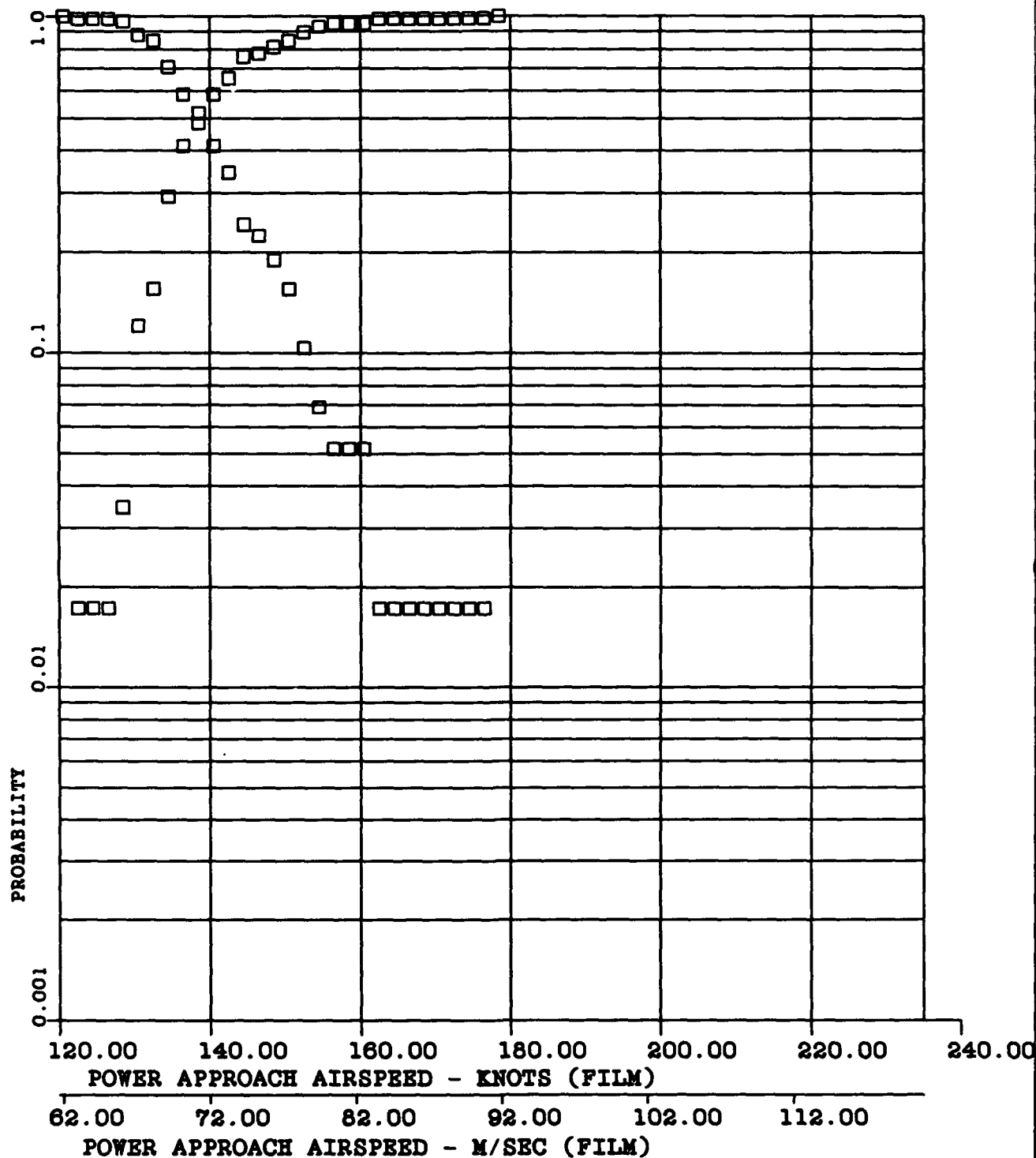


FIGURE 1-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -11.17 FEET/SEC (3.41 METRES/SEC)

A3--0.36

S- 2.40 FEET/SEC (0.73 METRES/SEC)

A4-2.76

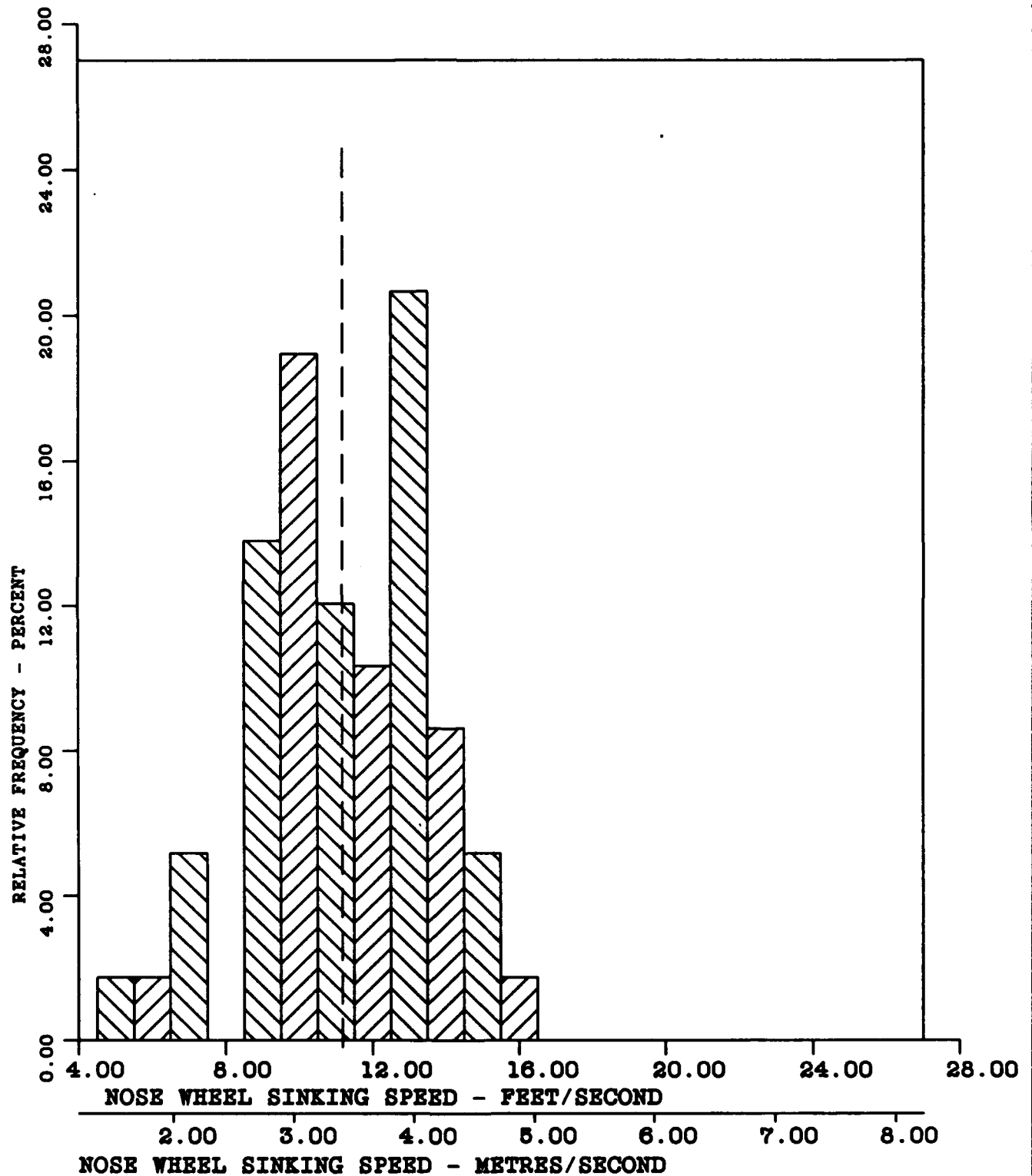


FIGURE 1-5 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -11.17 FEET/SEC (3.41 METRES/SEC)

A3--0.36

S- 2.40 FEET/SEC (0.73 METRES/SEC)

A4-2.76

CURVE FITTED - NORMAL

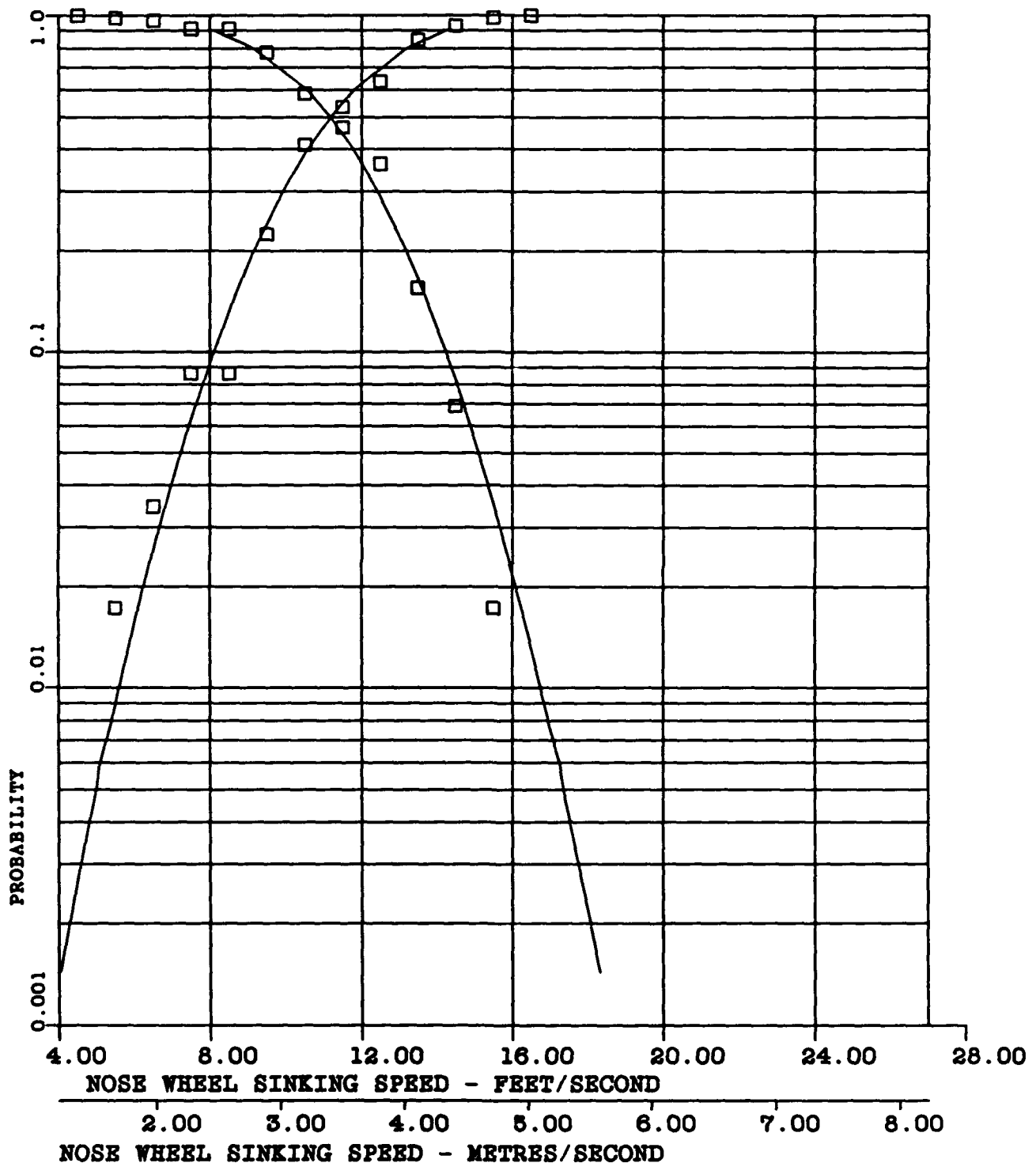


FIGURE 1-6 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -11.31 FEET/SEC (3.45 METRES/SEC)

A3--0.05

S- 2.54 FEET/SEC (0.78 METRES/SEC)

A4-2.02

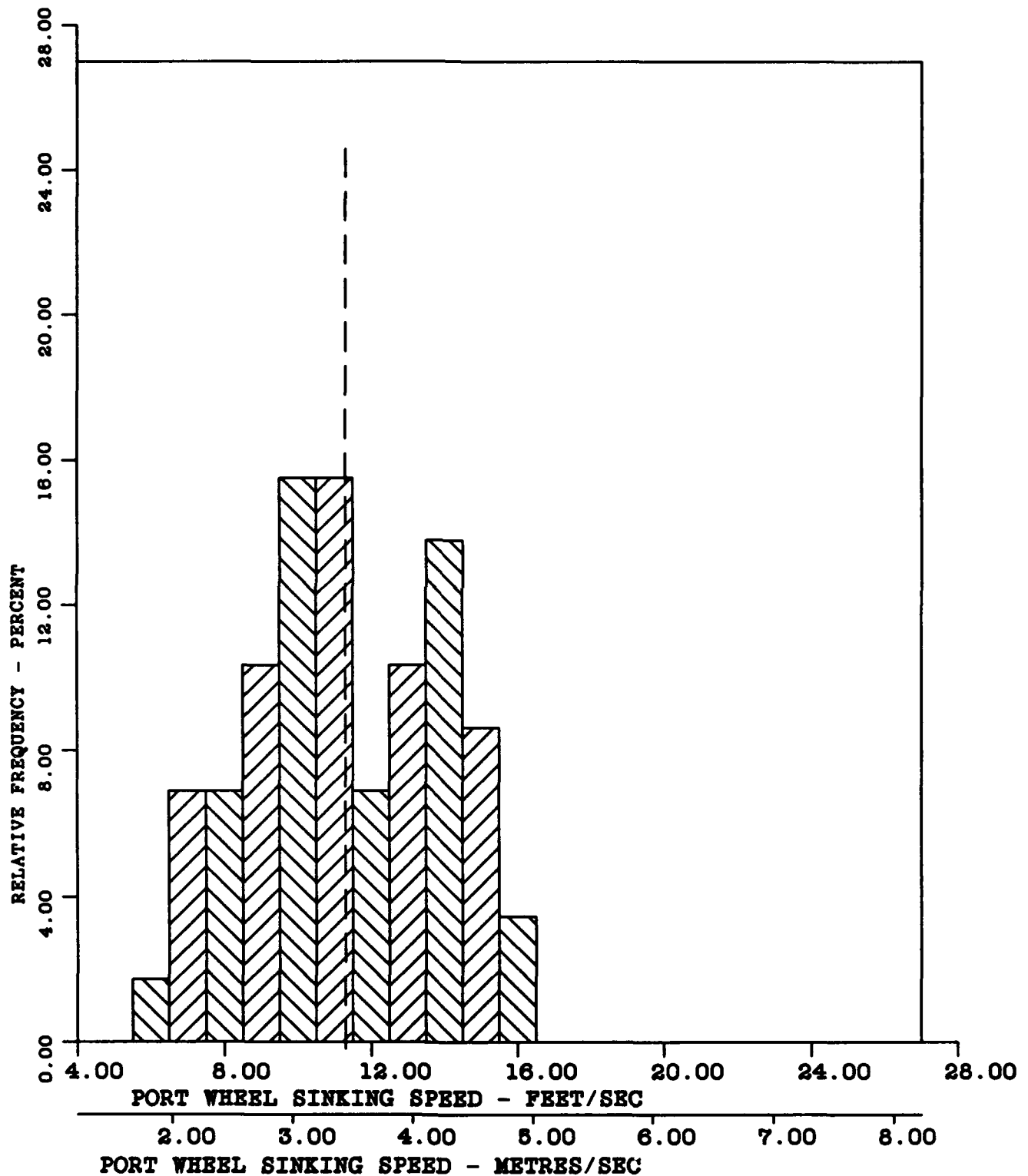


FIGURE I-7 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -11.31 FEET/SEC (3.45 METRES/SEC)

A3--0.05

S- 2.54 FEET/SEC (0.78 METRES/SEC)

A4-2.02

CURVE FITTED - NORMAL

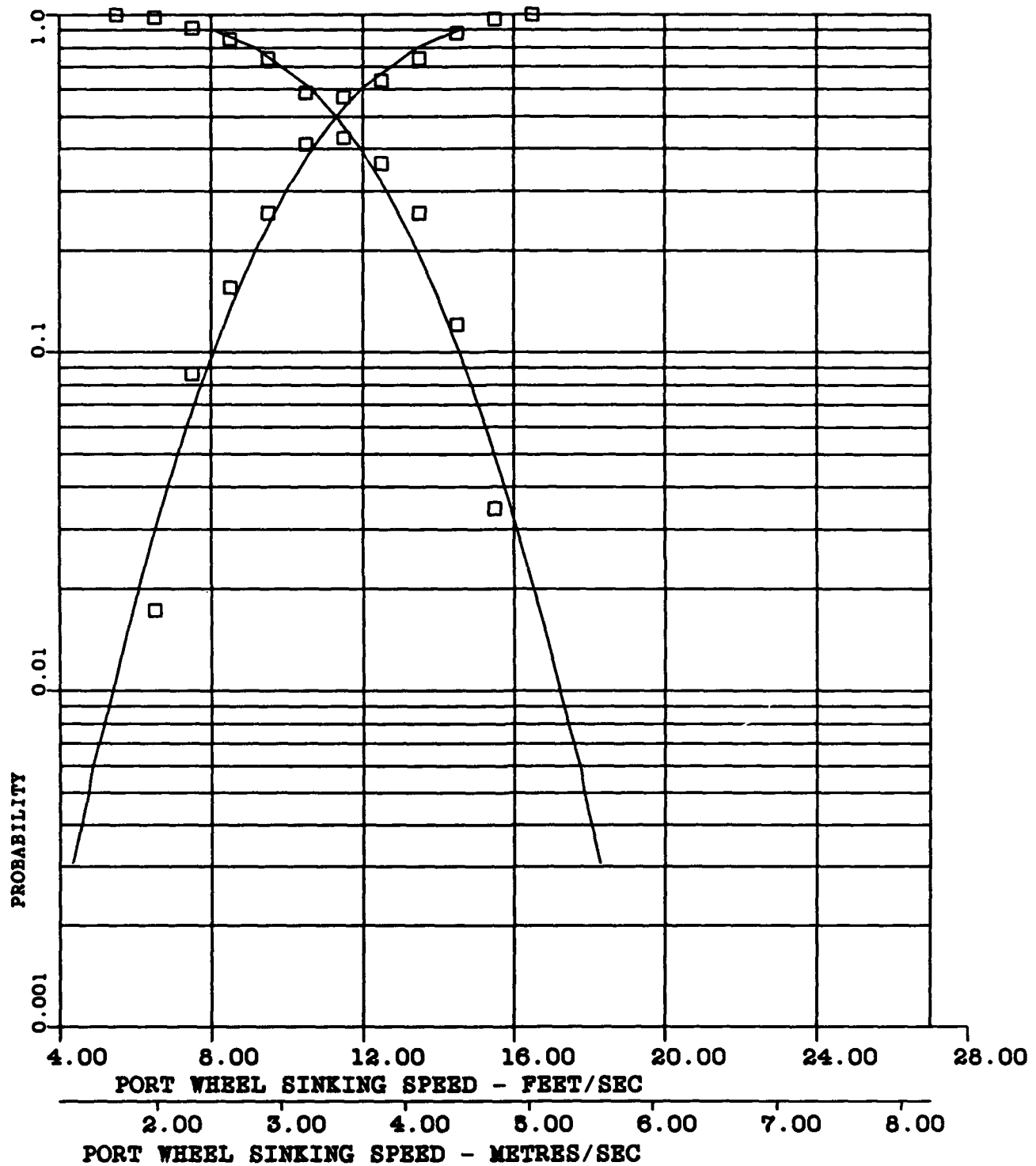


FIGURE 1-8 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -11.24 FEET/SEC (3.43 METRES/SEC)

A3--0.01

S- 2.51 FEET/SEC (0.76 METRES/SEC)

A4-2.75

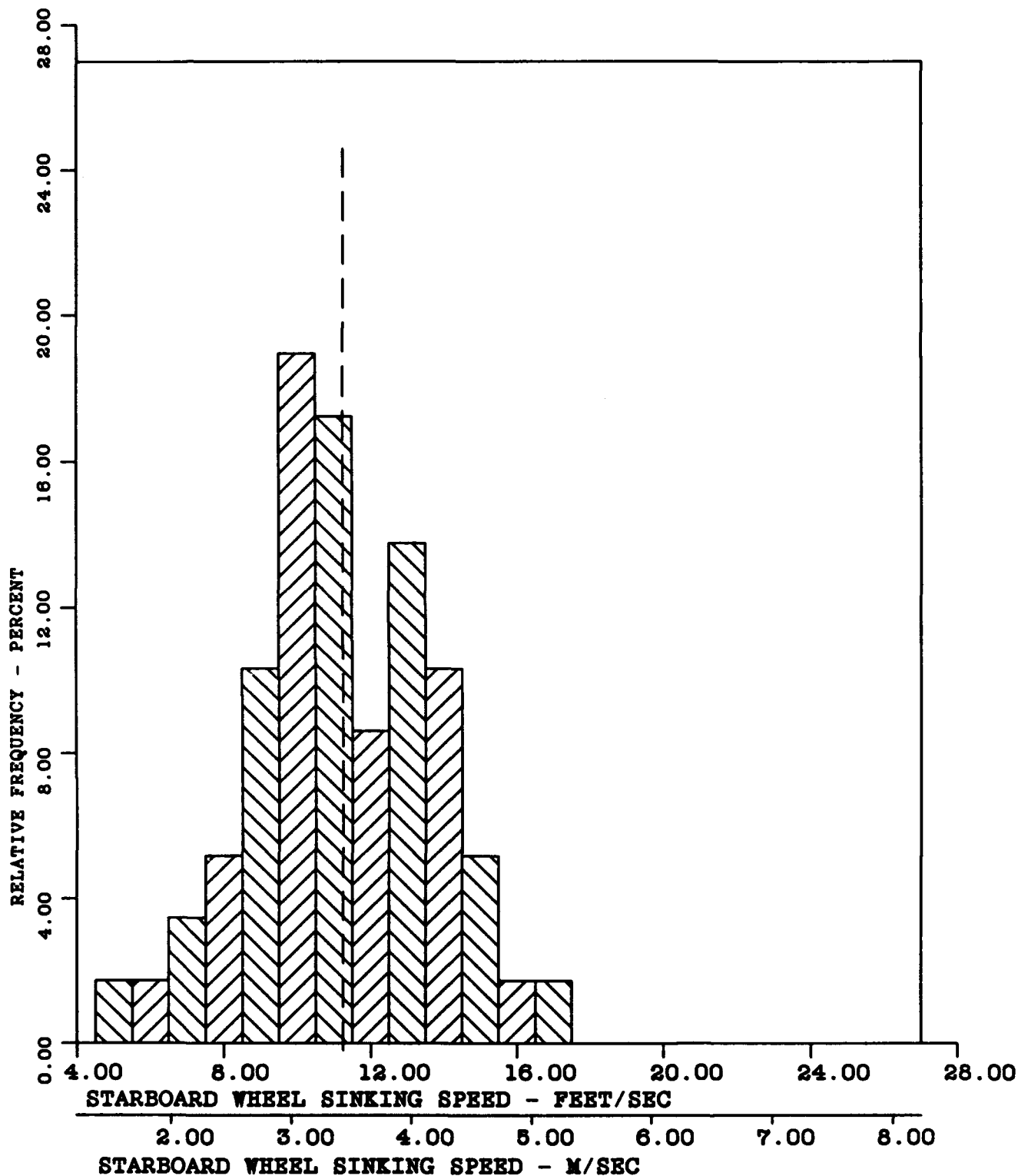


FIGURE I-9 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -11.24 FEET/SEC (3.43 METRES/SEC)

A3--0.01

S- 2.81 FEET/SEC (0.76 METRES/SEC)

A4-2.75

CURVE FITTED - NORMAL

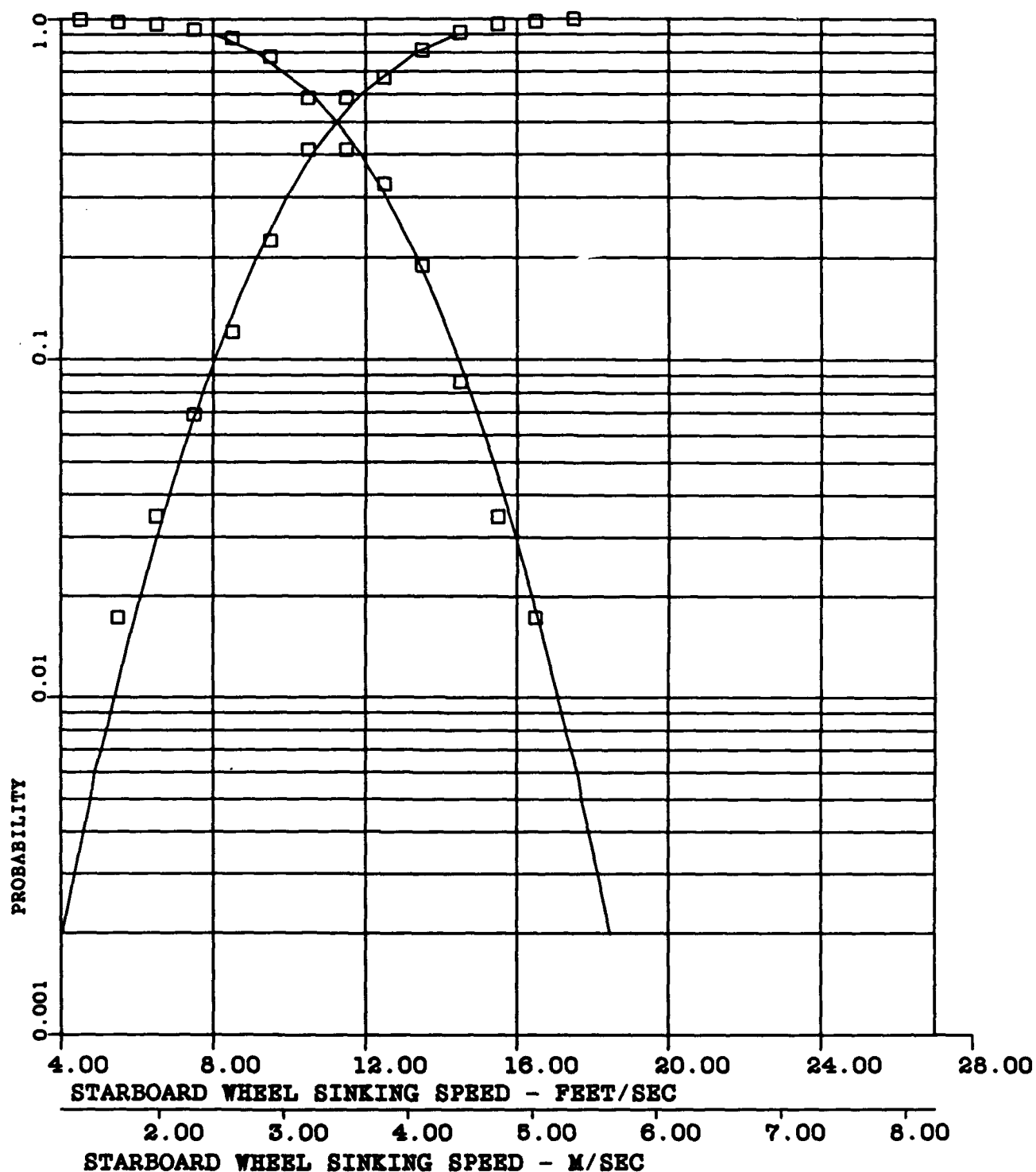


FIGURE I-10 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -11.31 FEET/SEC (3.45 METRES/SEC)

A3--0.04

S- 2.46 FEET/SEC (0.75 METRES/SEC)

A4-2.36

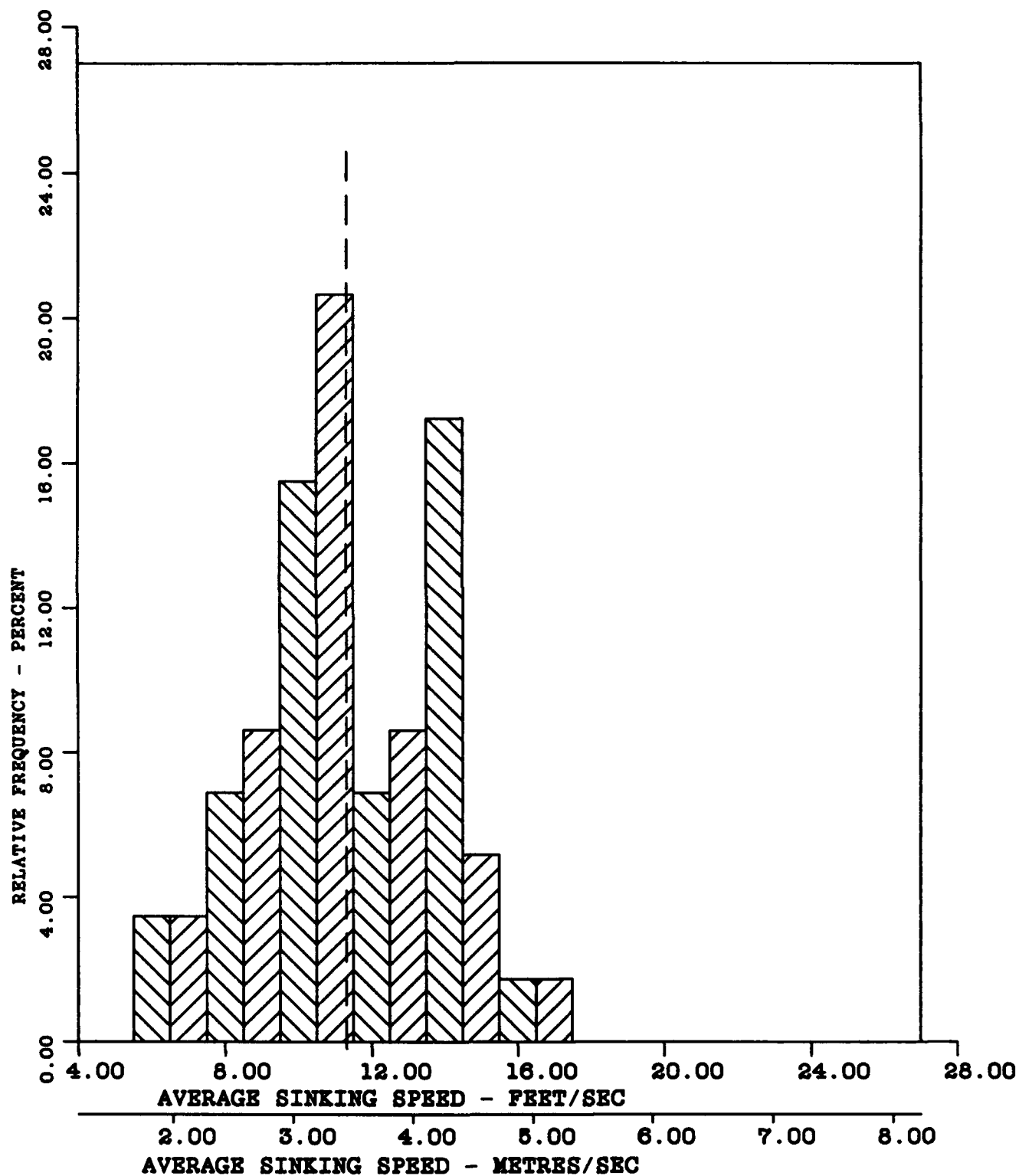


FIGURE I-11 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -11.31 FEET/SEC (3.45 METRES/SEC)

A3--0.04

S= 2.46 FEET/SEC (0.75 METRES/SEC)

A4-2.36

CURVE FITTED - NORMAL

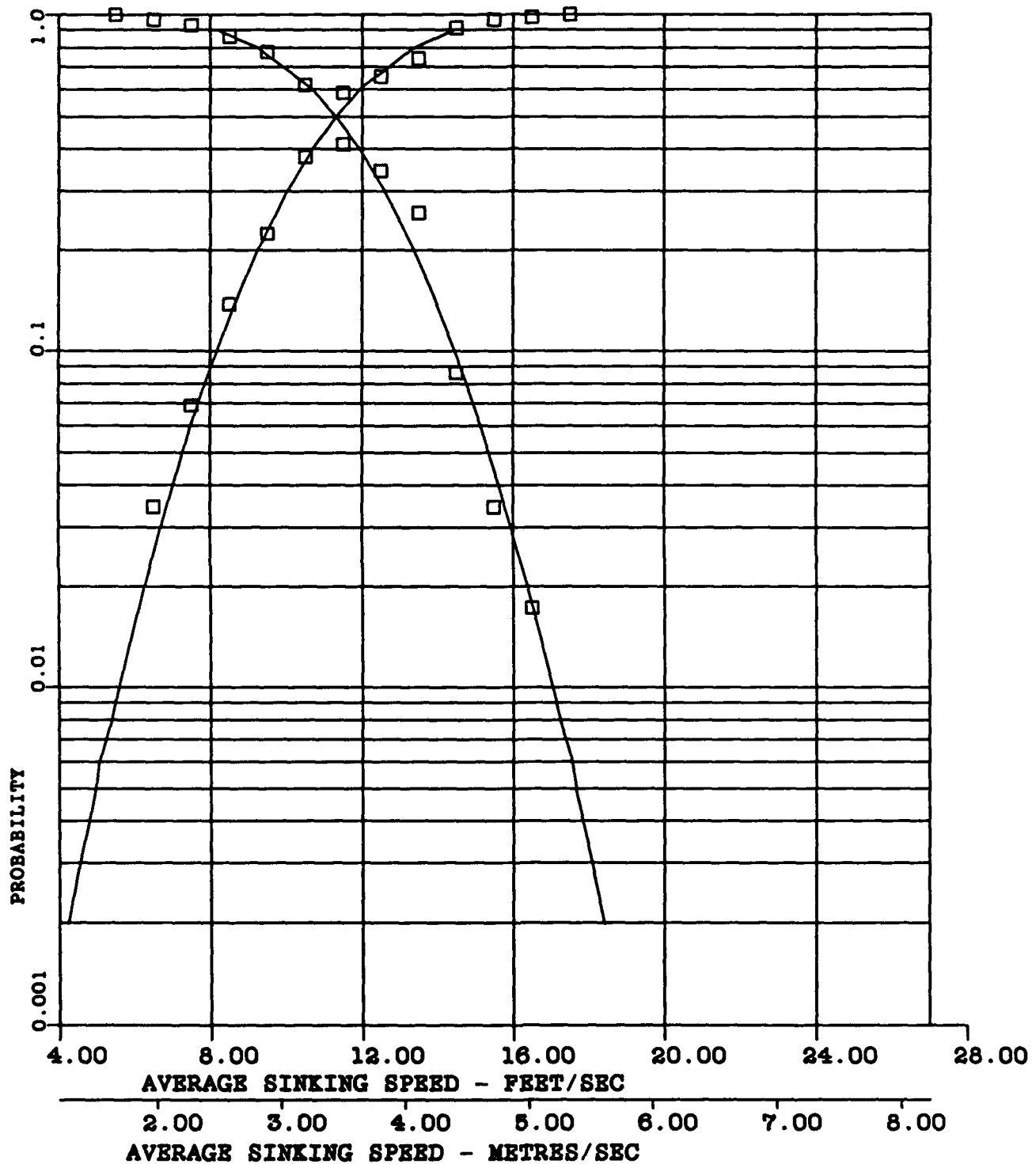


FIGURE I-12 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -1.06

S- 0.10

A3-0.74

A4-3.20

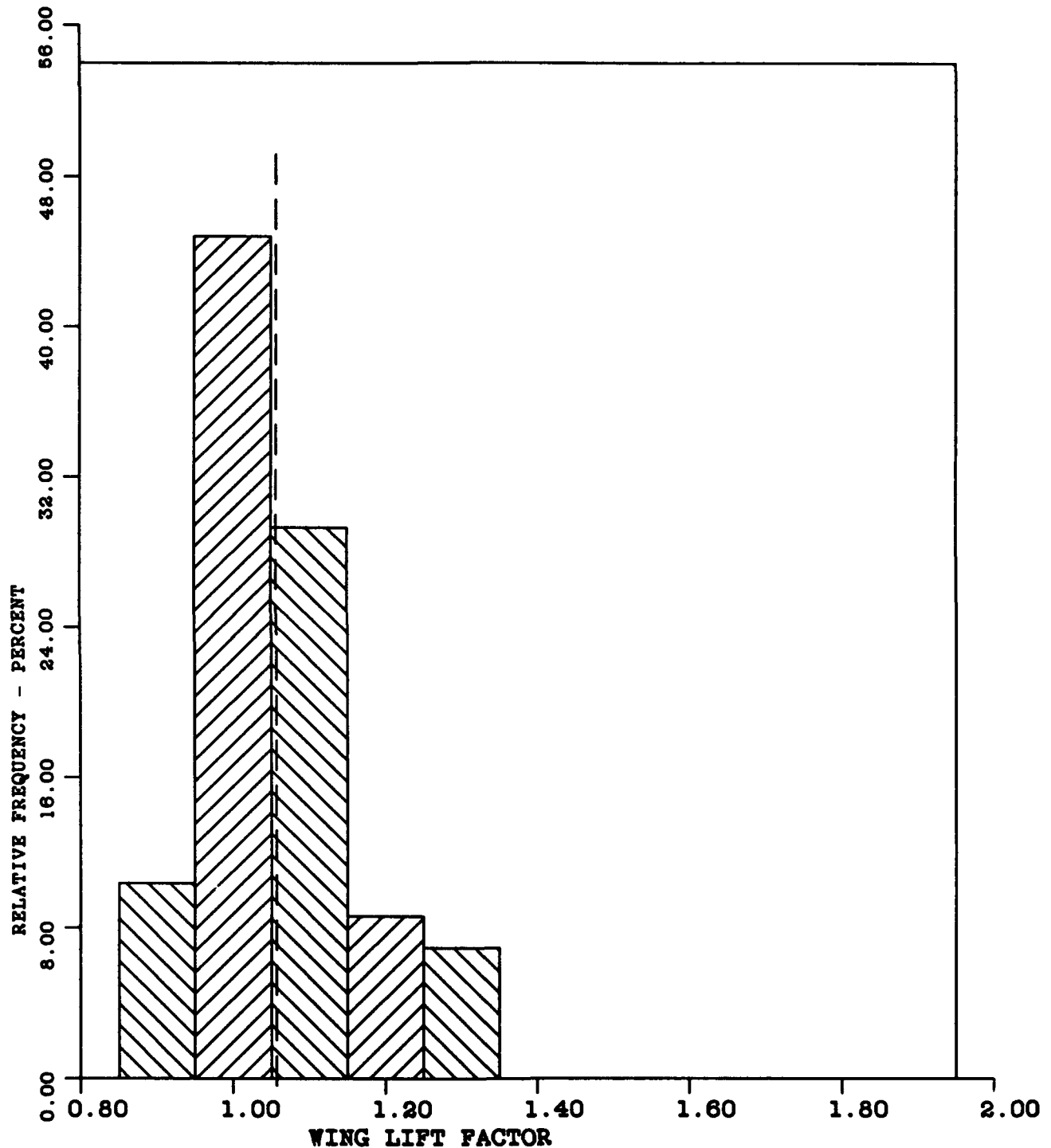


FIGURE I-13 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=58

 $\bar{X}$ -1.06

S= 0.10

CURVE FITTED - PEARSON TYPE III

A3-0.74

A4-3.20

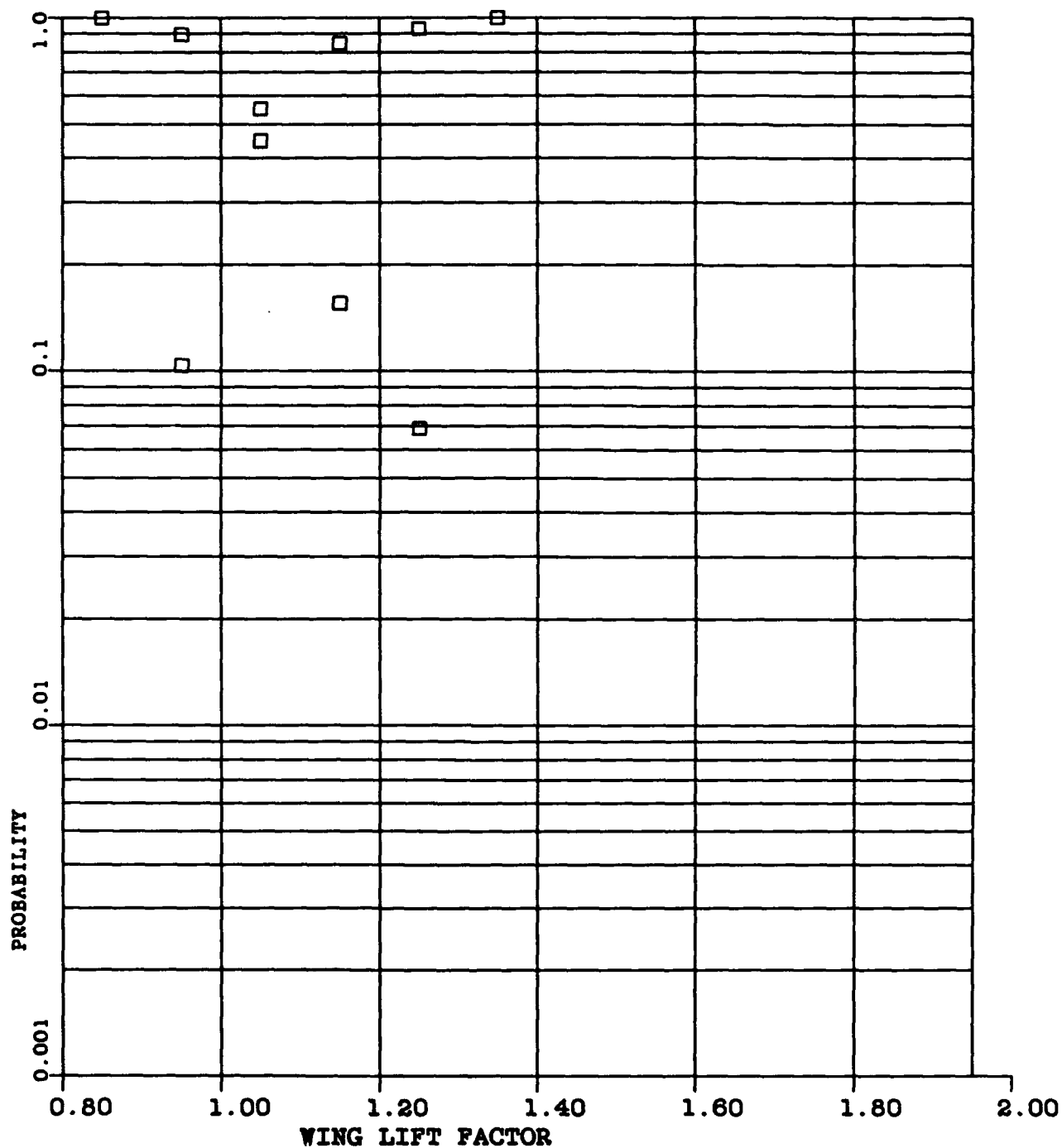


FIGURE I-14 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -7.95 DEGREES (0.139 RADIANS)

A3-0.63

S- 1.59 DEGREES (0.028 RADIANS)

A4-3.36

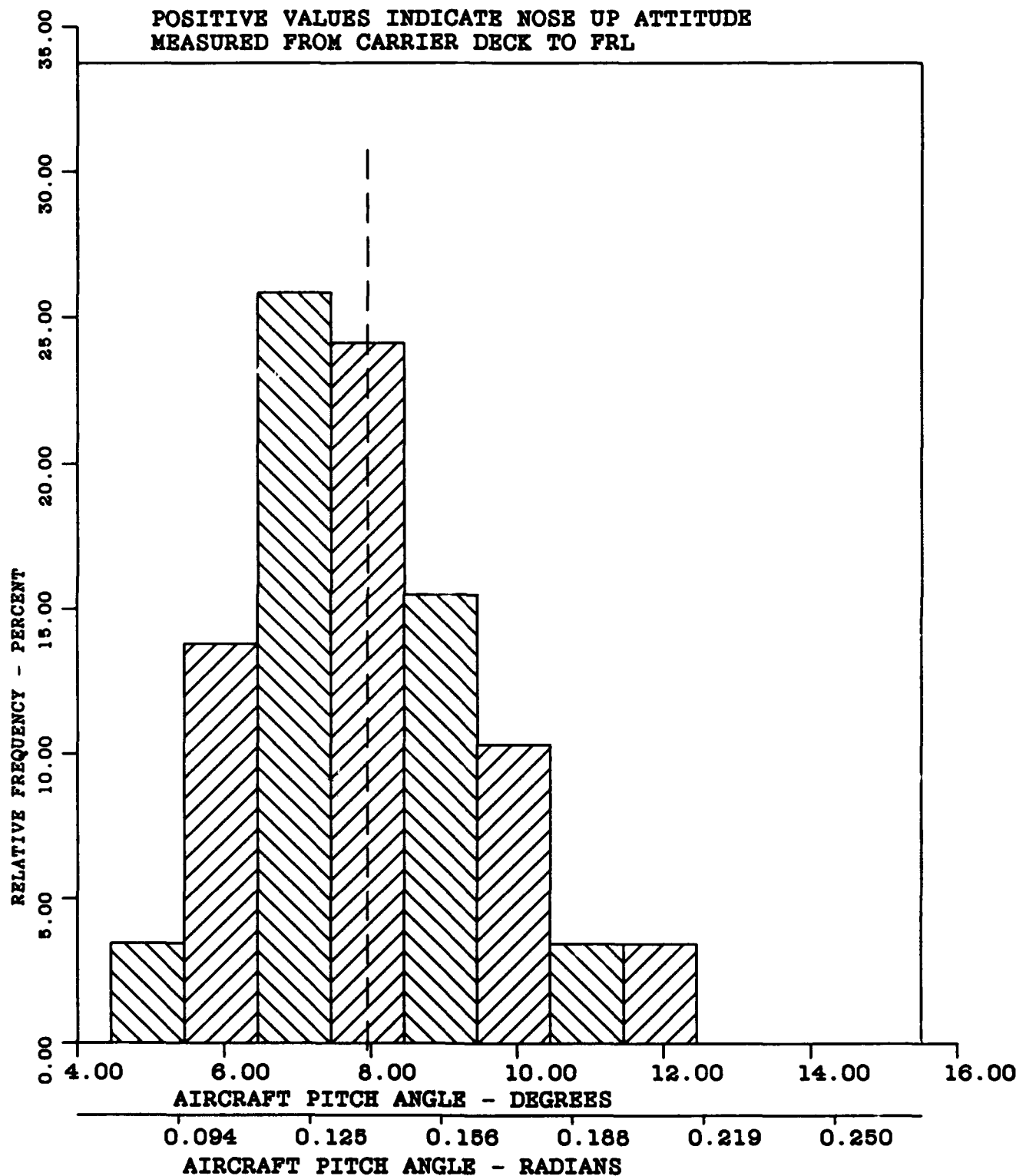


FIGURE I-15 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -7.95 DEGREES (0.139 RADIANS)

A3-0.63

S- 1.59 DEGREES (0.028 RADIANS)

A4-3.36

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE

MEASURED FROM CARRIER DECK TO FRL

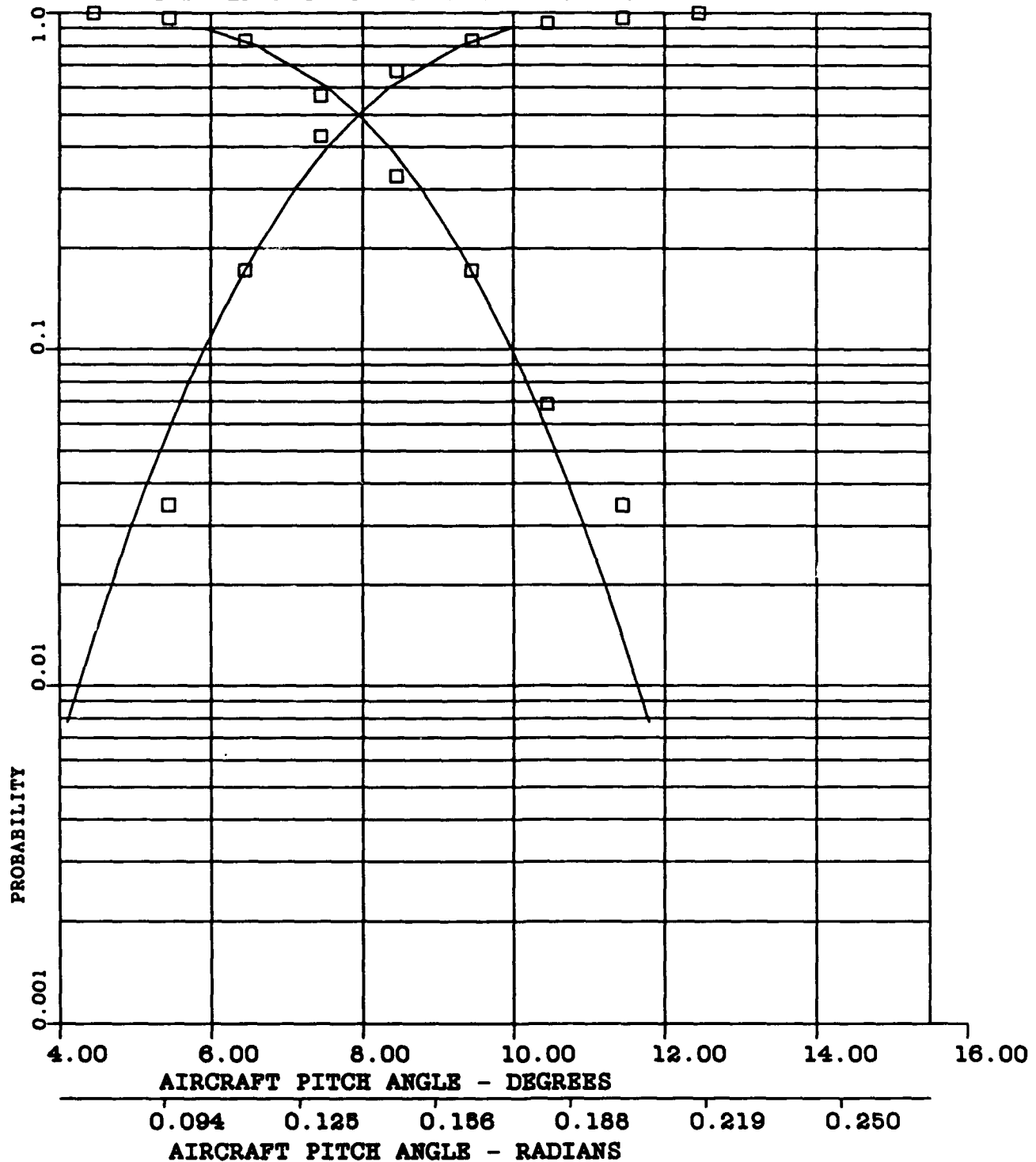


FIGURE 1-16 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -0.57 DEGREES (-0.010 RADIANS)

A3--0.42

S- 1.72 DEGREES (0.030 RADIANS)

A4-3.03

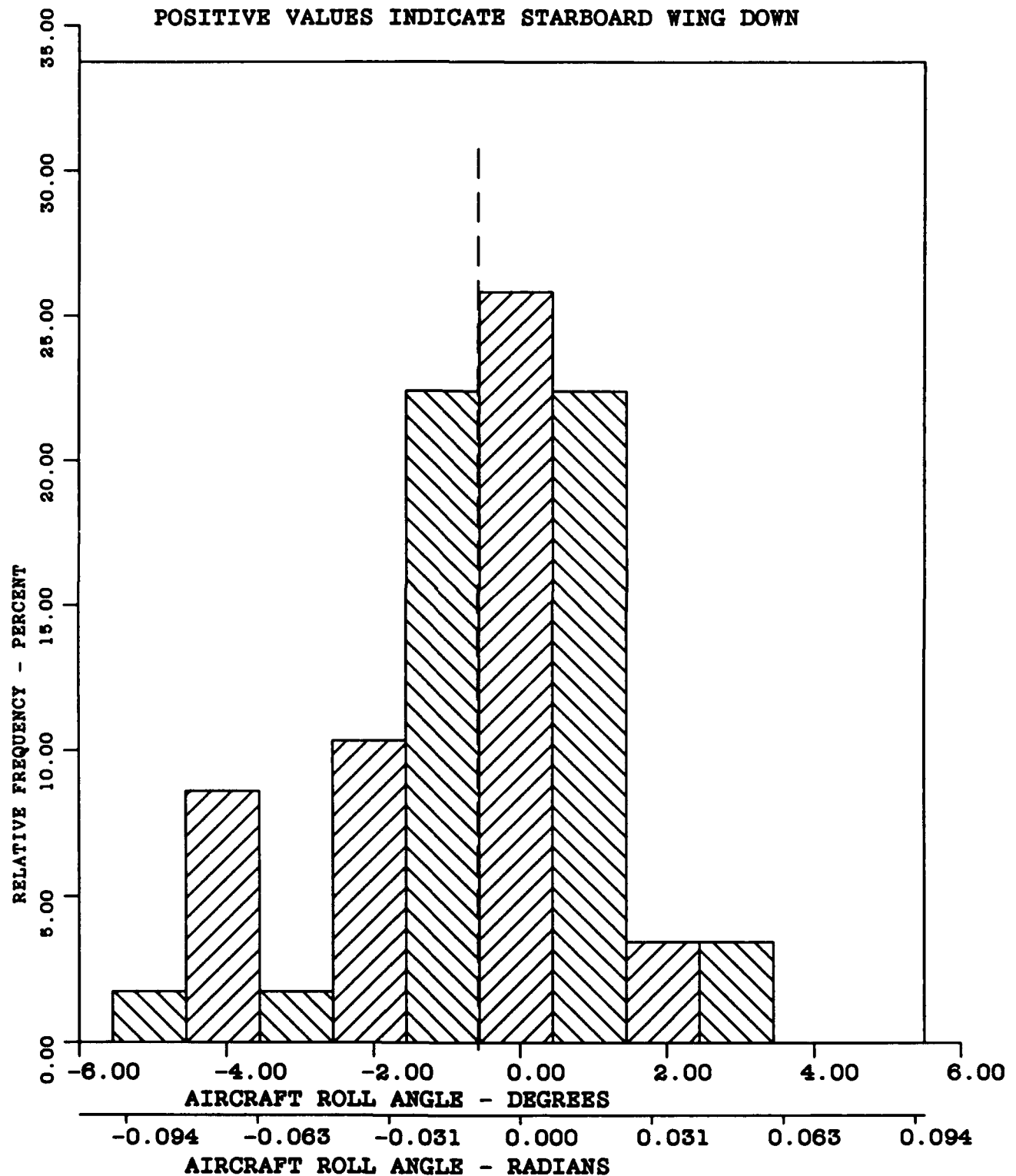


FIGURE I-17 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -0.57 DEGREES (-0.010 RADIANS)

A3--0.42

S= 1.72 DEGREES (0.030 RADIANS)

A4-3.03

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

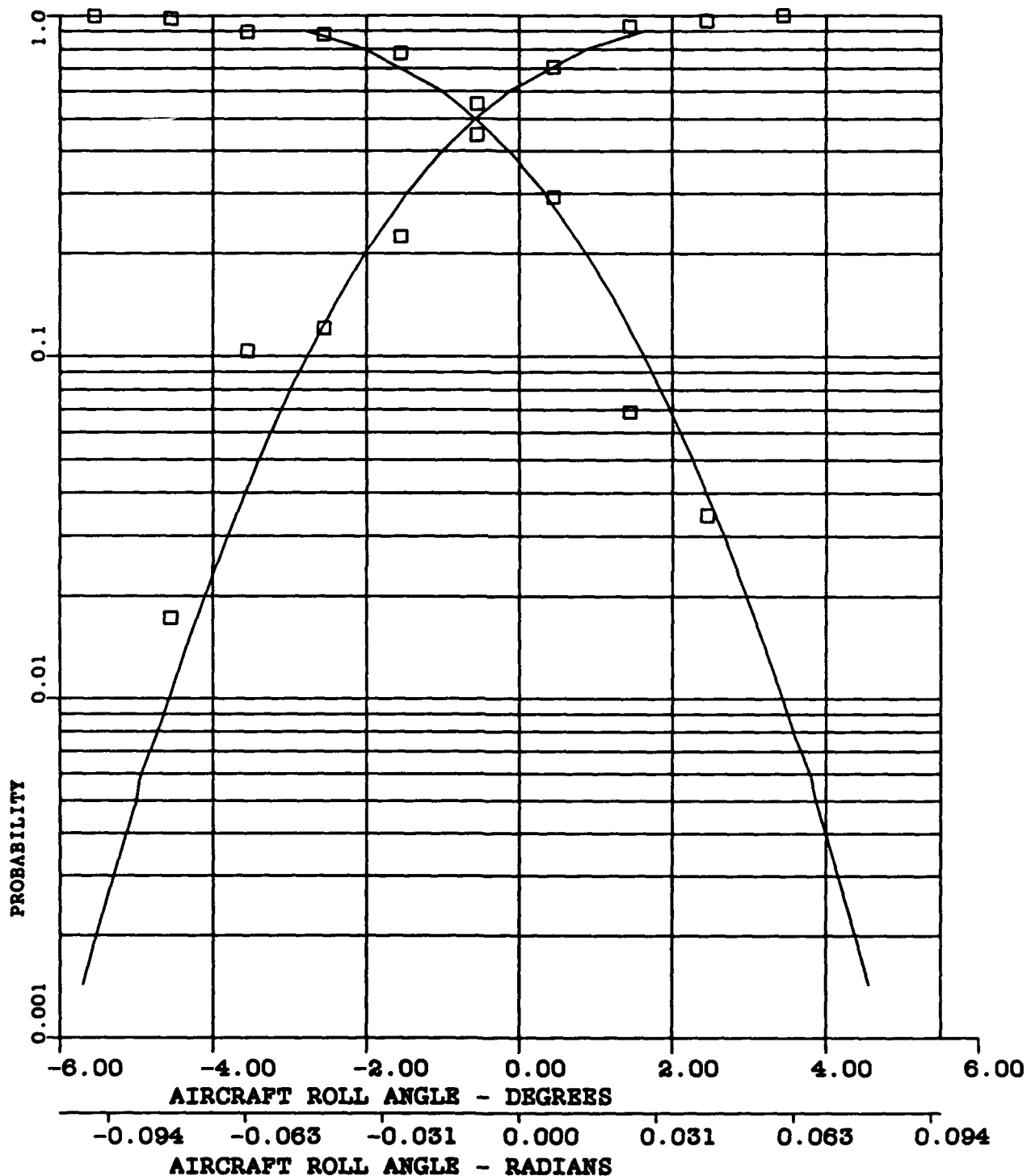


FIGURE 1-18 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -270.55 FEET (82.48 METRES)

A3--0.51

S- 35.51 FEET (10.82 METRES)

A4-2.78

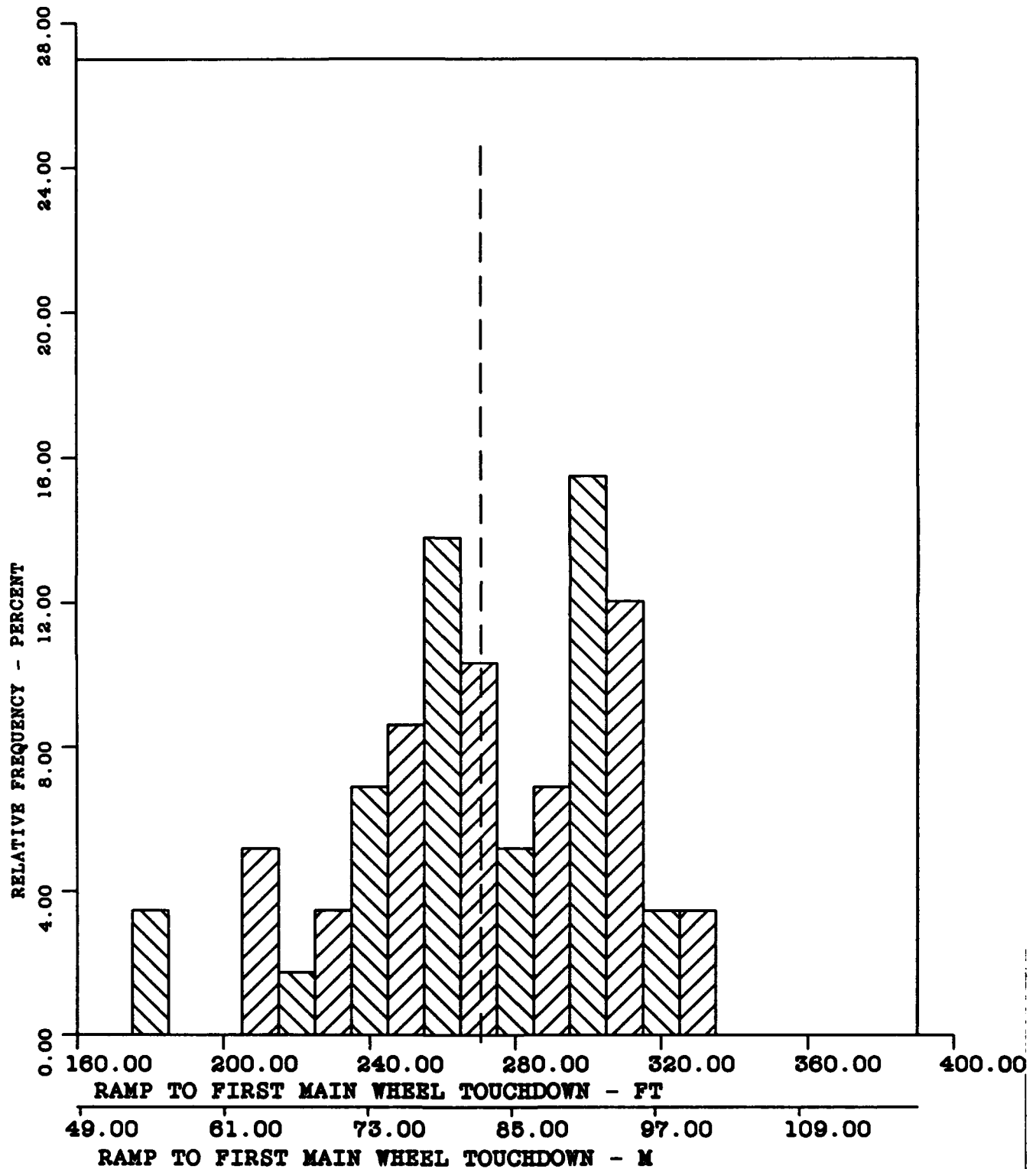


FIGURE I-19 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-68)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -270.55 FEET (82.46 METRES)

A3--0.51

S- 35.51 FEET (10.82 METRES)

A4-2.78

CURVE FITTED - NORMAL

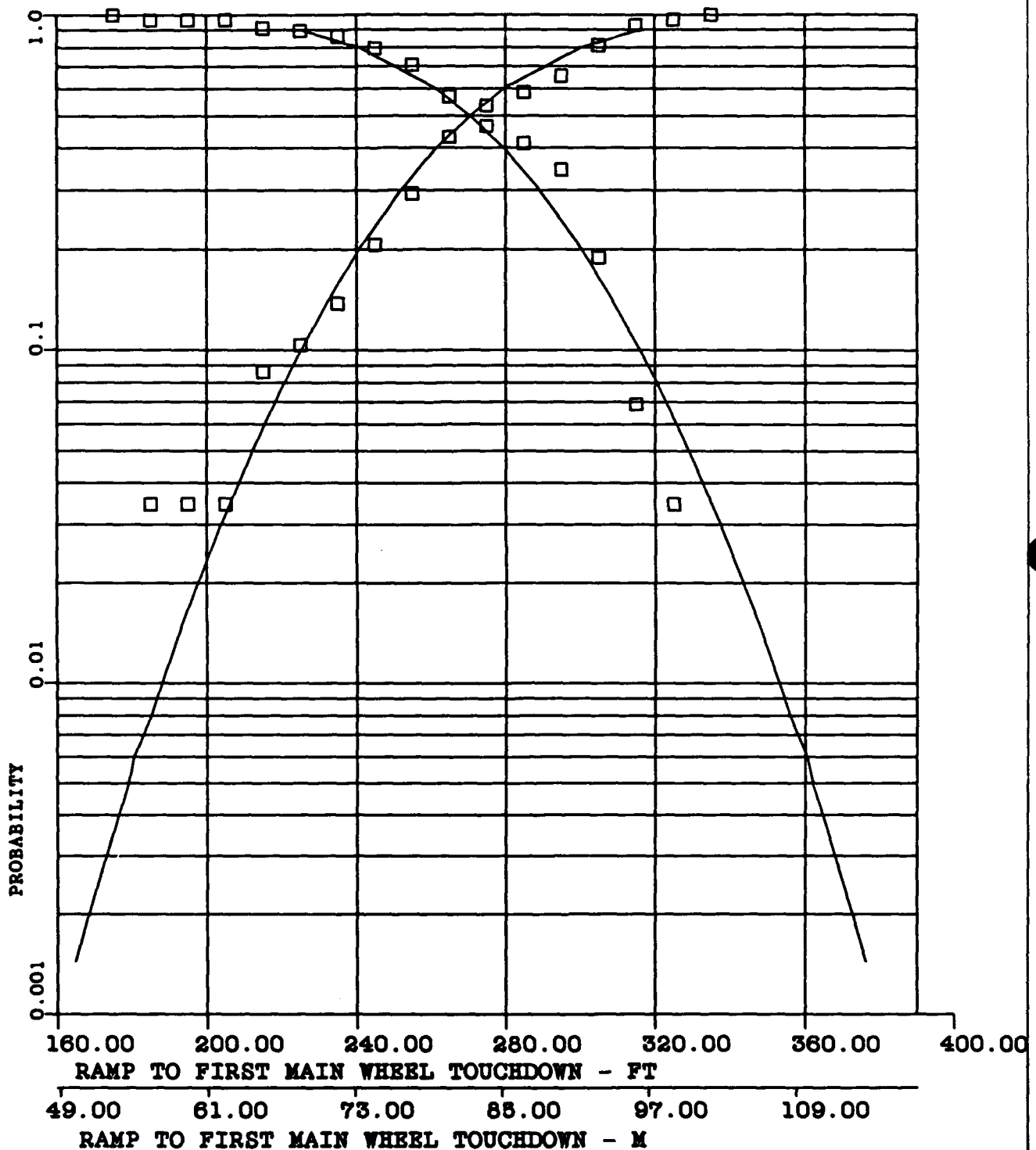


FIGURE 1-20 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -8.48 FEET (-2.59 METRES)

A3-0.12

S- 4.01 FEET (1.22 METRES)

A4-3.54

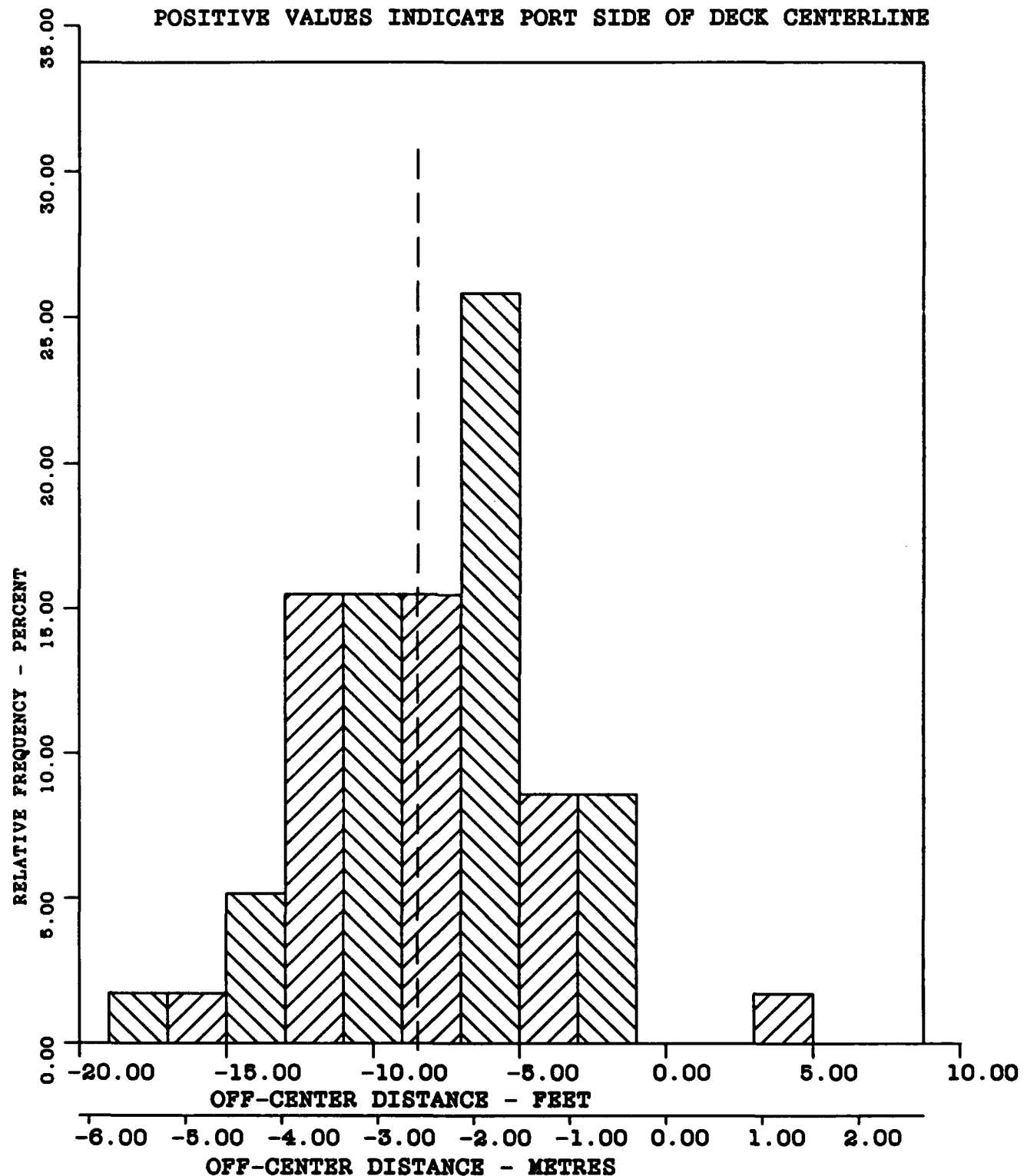


FIGURE I-21 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -8.48 FEET (-2.59 METRES)

A3-0.12

S= 4.01 FEET (1.22 METRES)

A4-3.54

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

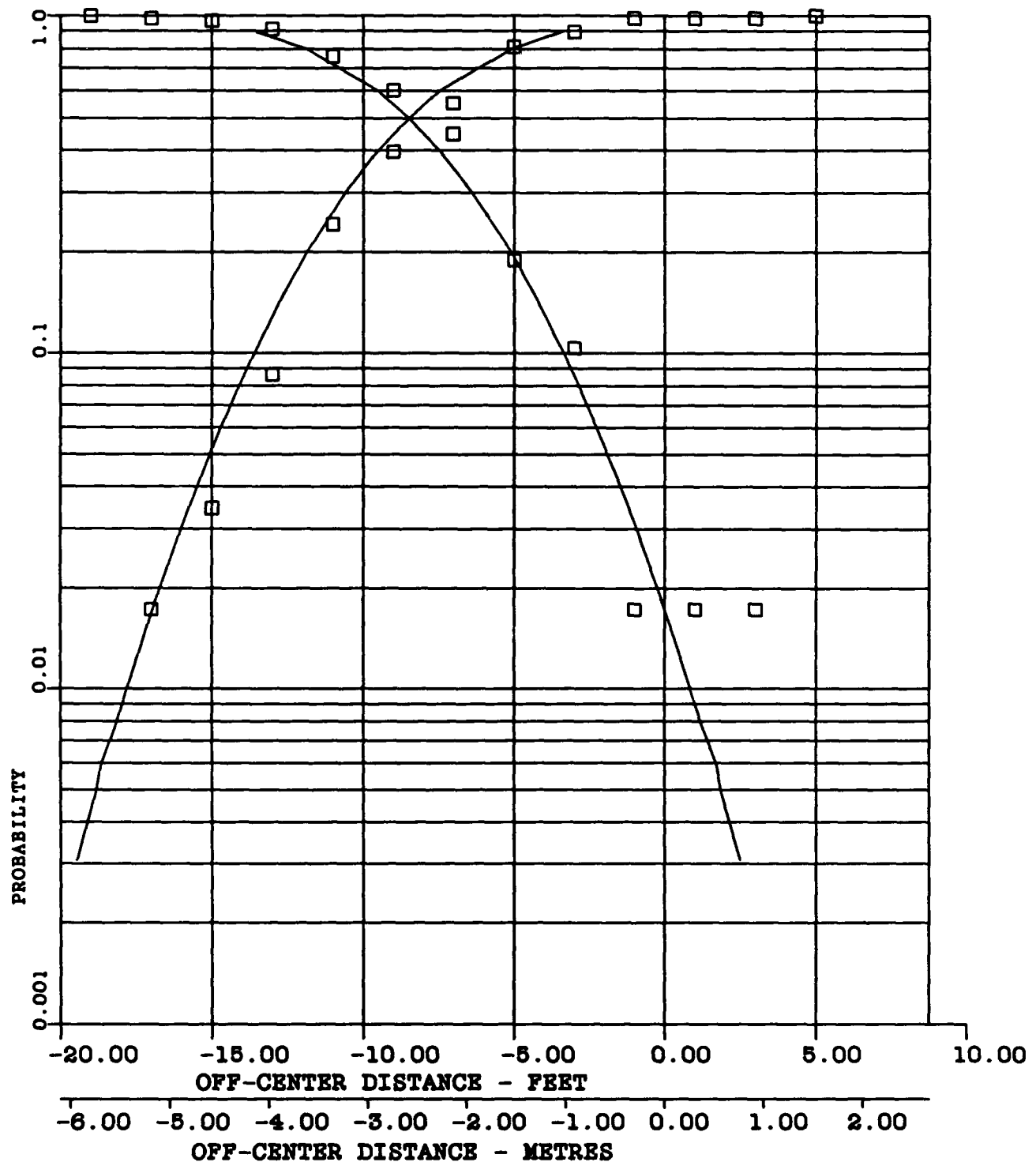


FIGURE 1-22 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=47

 $\bar{X}$ -3.15

S= 0.87

A3--0.67

A4-2.50

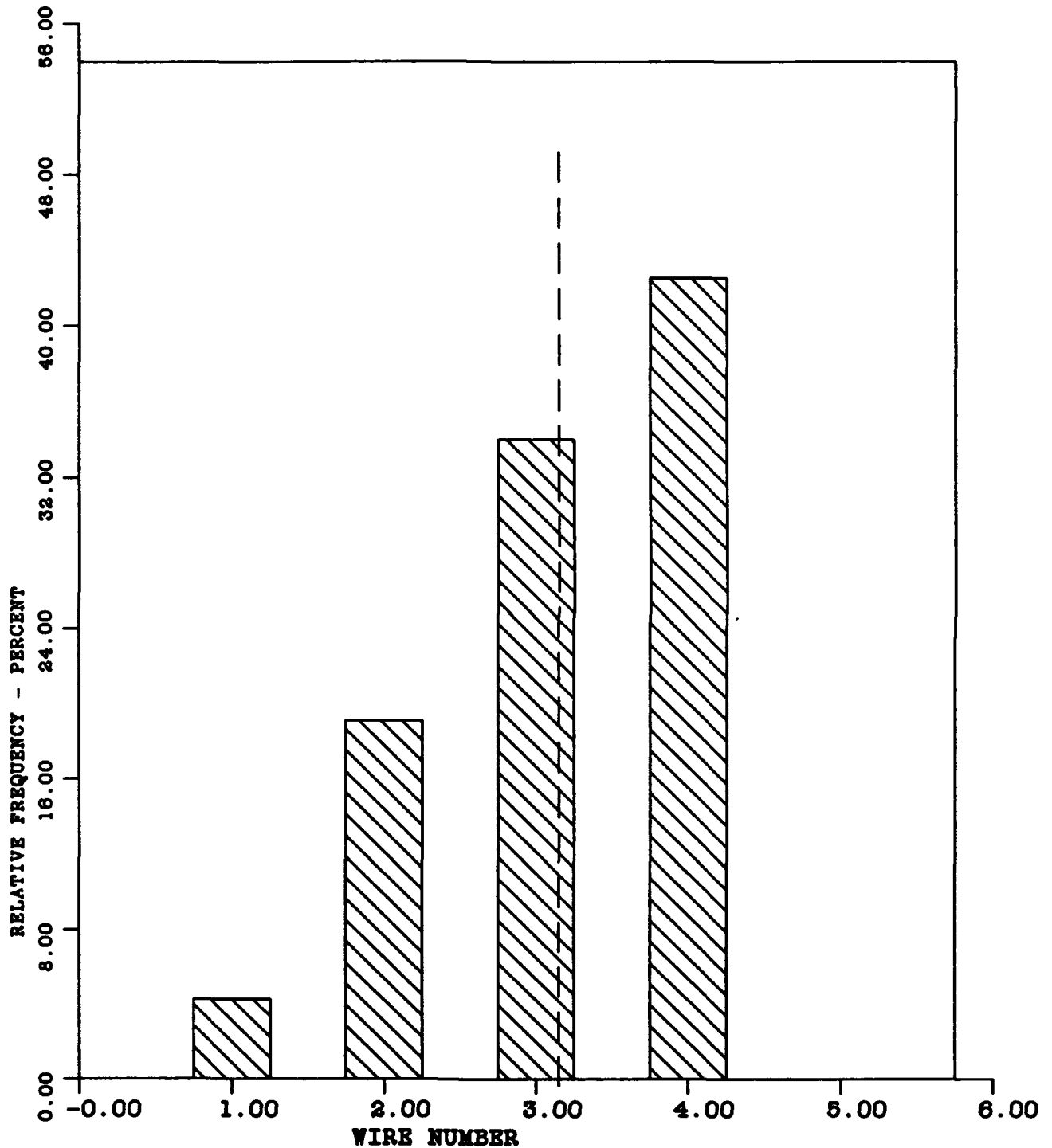


FIGURE I-23 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-68)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -3.25 DEGREES (0.057 RADIANS)

A3-0.02

S- 0.82 DEGREES (0.014 RADIANS)

A4-2.68

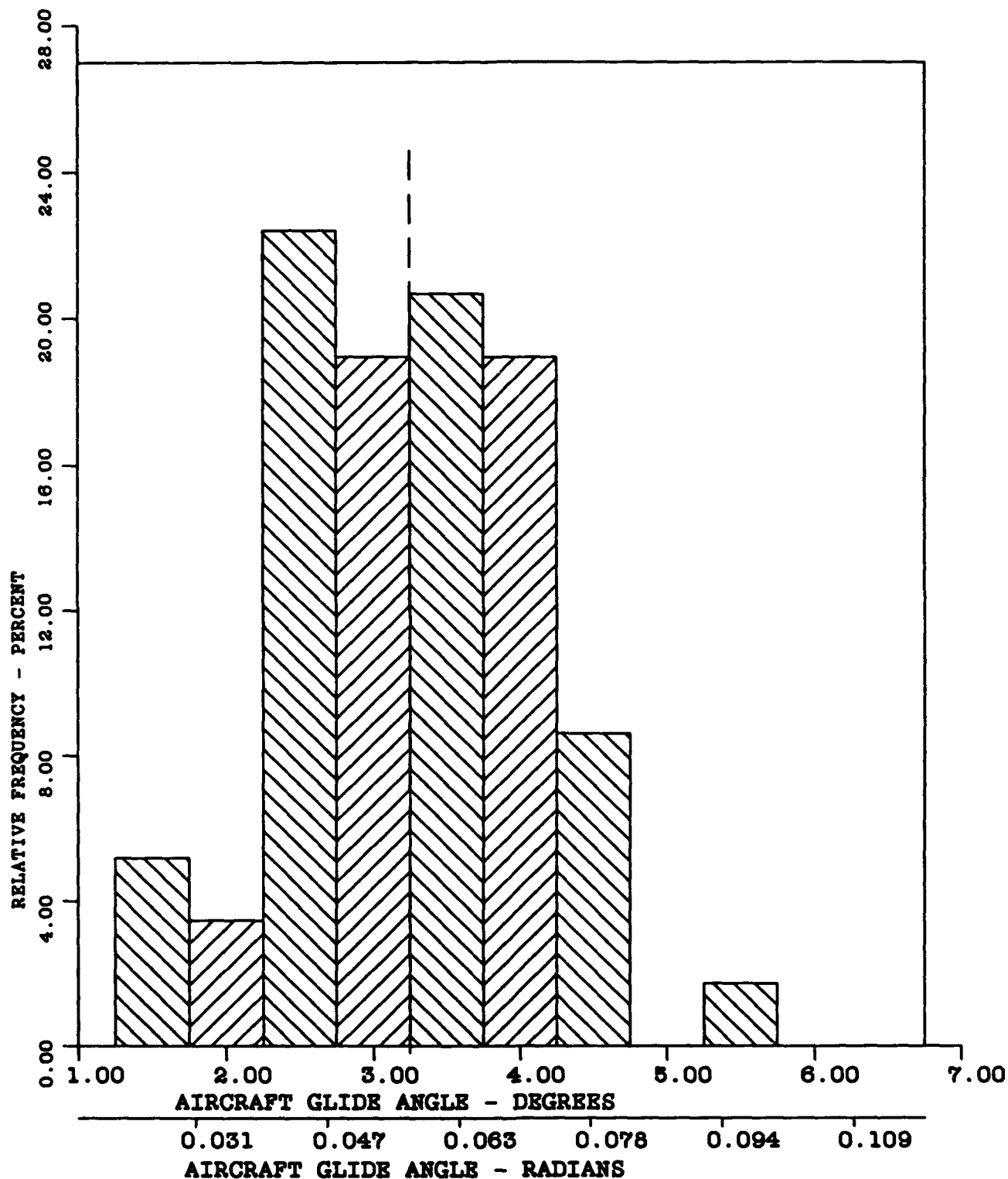


FIGURE 1-24 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -111.66 KNOTS (57.44 METRES/SEC)

A3-0.70

S- 8.72 KNOTS (4.49 METRES/SEC)

A4-5.26

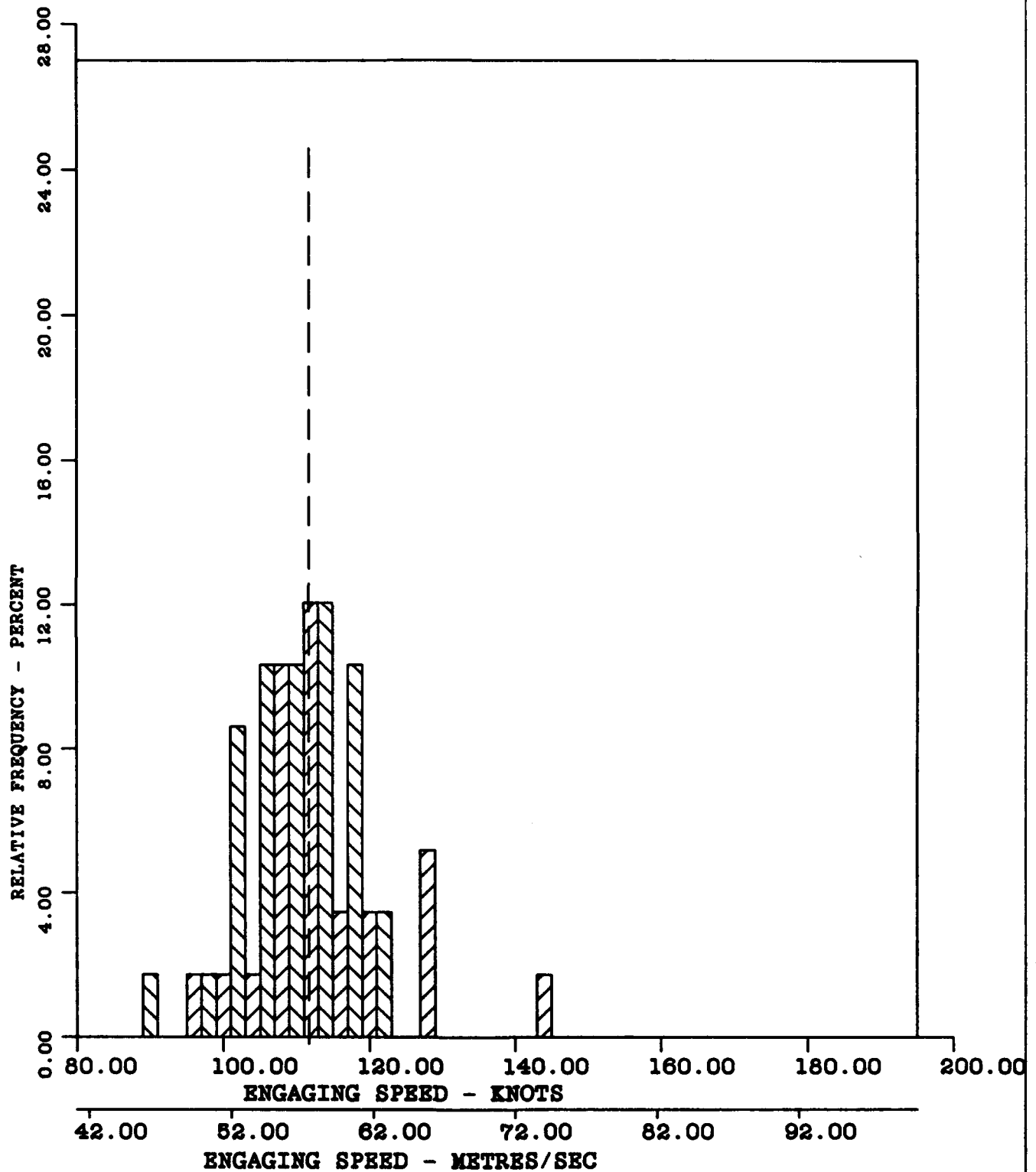


FIGURE I-25 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -111.66 KNOTS (57.44 METRES/SEC)

A3-0.70

S= 8.72 KNOTS (4.49 METRES/SEC)

A4-5.26

CURVE FITTED - PEARSON TYPE III

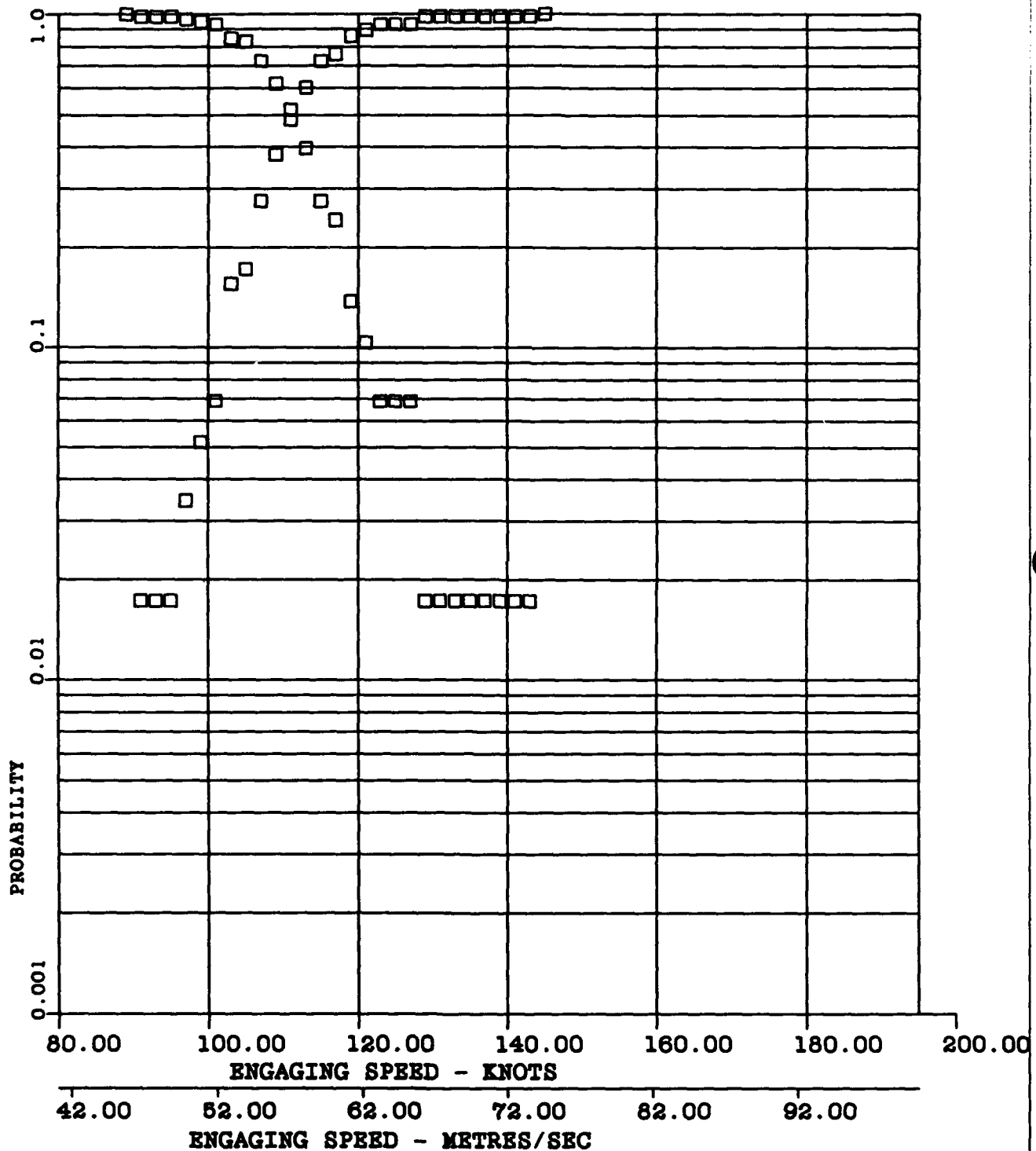


FIGURE 1-26 PROBABILITY DISTRIBUTION OF ENGAGING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -133.54 KNOTS (68.69 METRES/SEC)

A3--1.56

S- 3.71 KNOTS (1.91 METRES/SEC)

A4-6.08

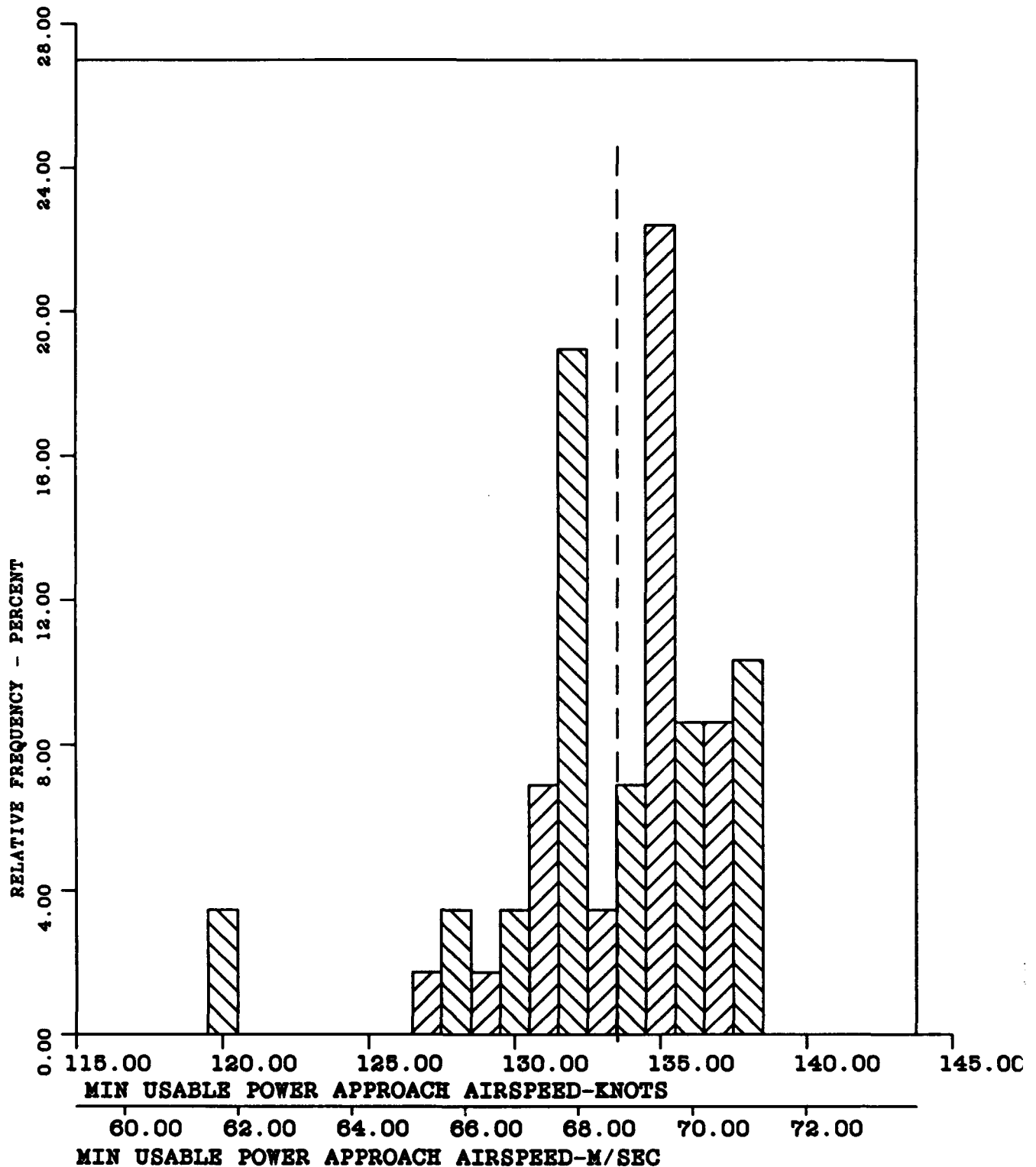


FIGURE 1-27 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -1.05

S- 0.07

A3-1.00

A4-4.28

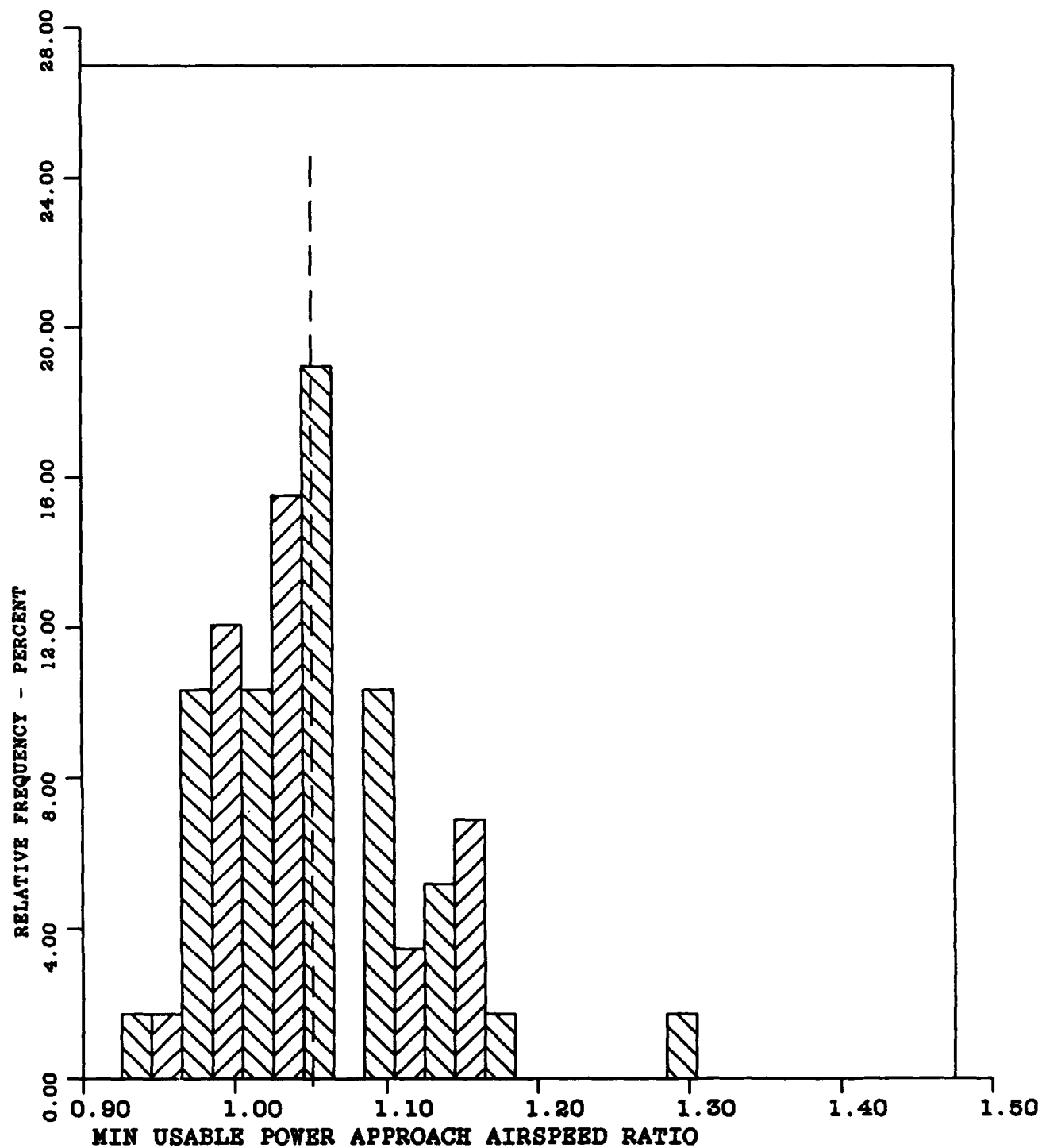


FIGURE 1-28 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM



MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -0.18 DEGREES (0.003 RADIANS)

A3-1.10

S- 0.84 DEGREES (0.015 RADIANS)

A4-3.89

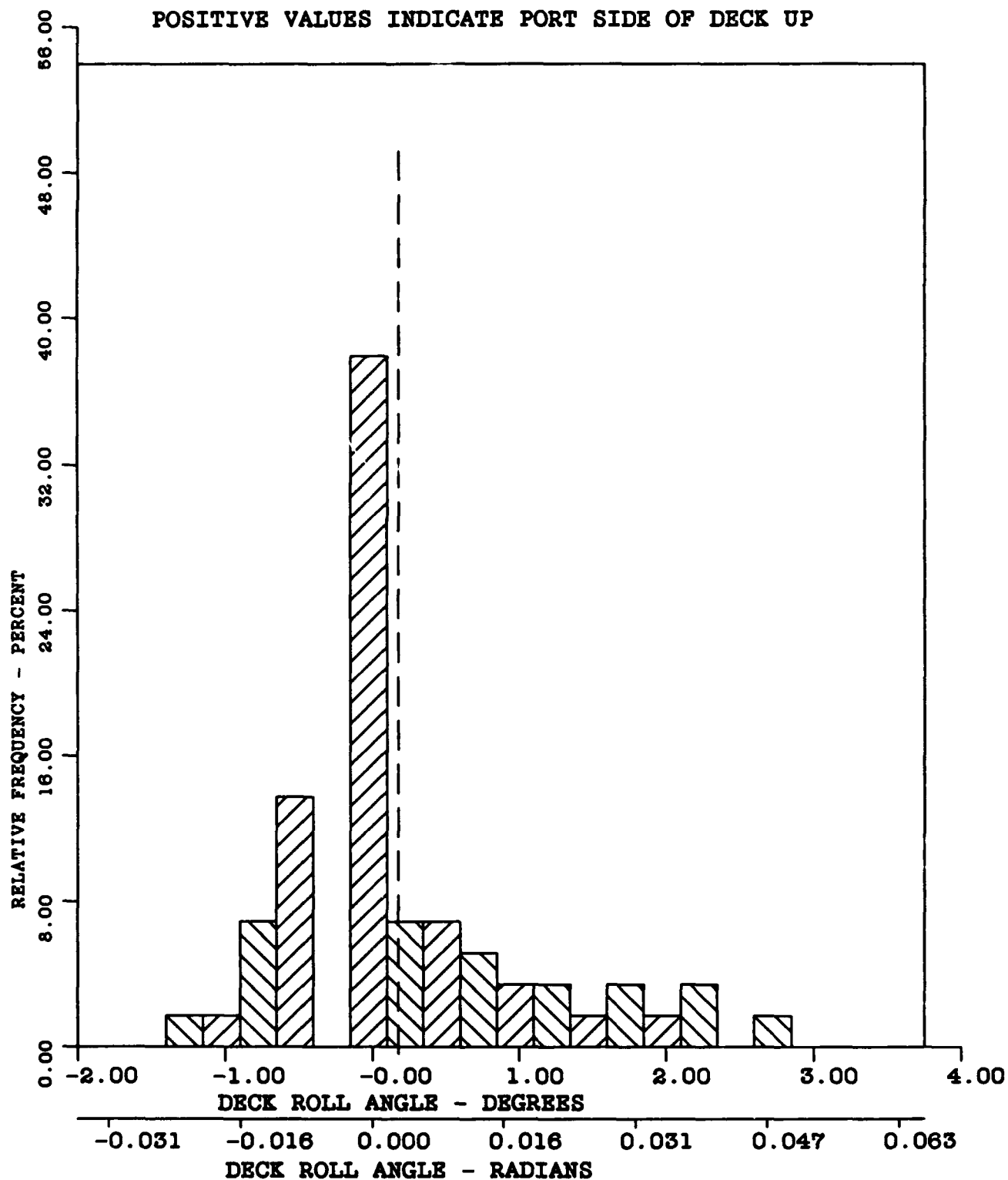


FIGURE 1-29 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ =0.18 DEGREES (0.003 RADIANS)

A3=1.10

S= 0.84 DEGREES (0.015 RADIANS)

A4=3.89

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

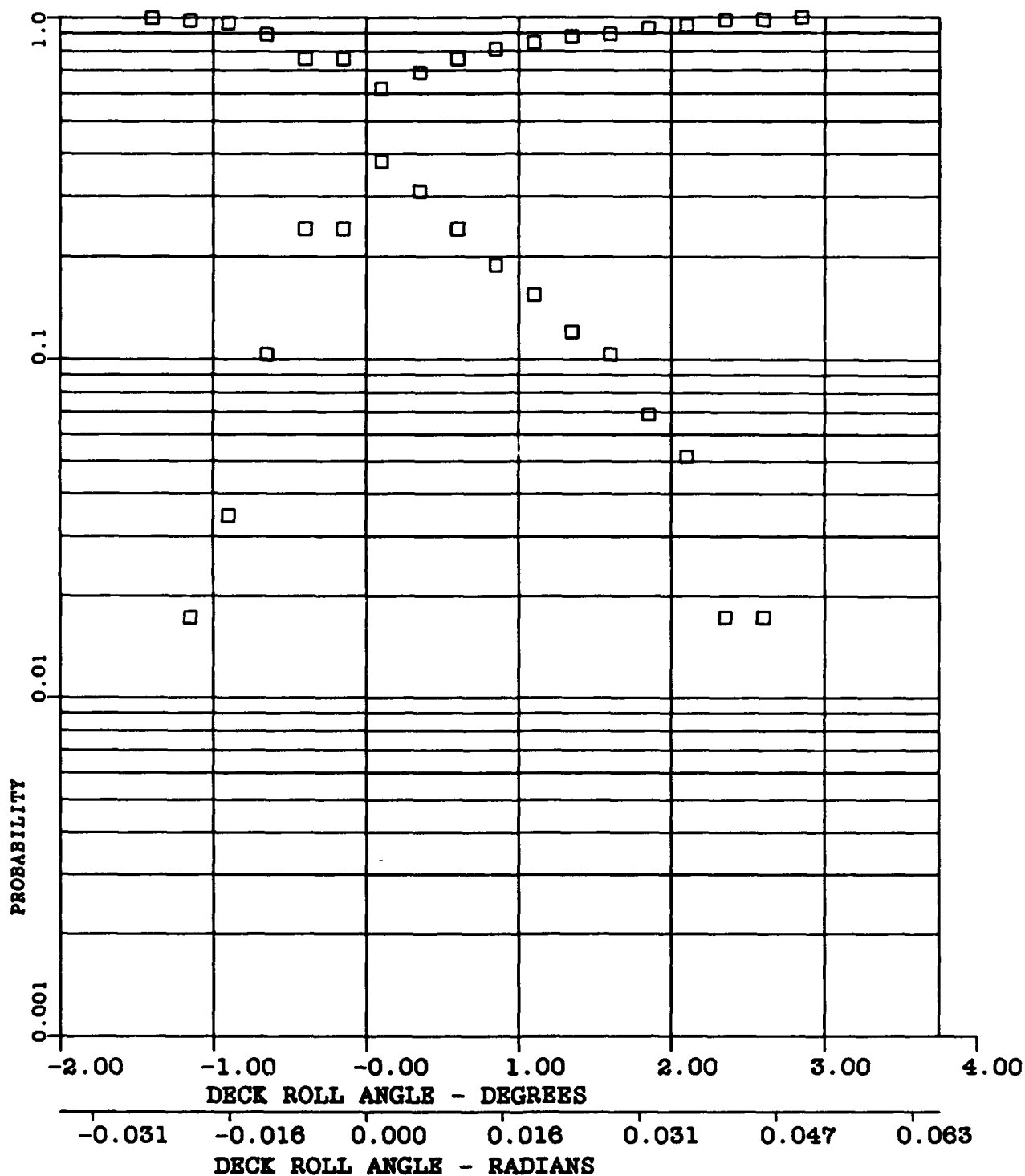


FIGURE I-30 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -0.19 DEGREES (-0.003 RADIANS)

A3--0.23

S- 0.23 DEGREES (0.004 RADIANS)

A4-2.68

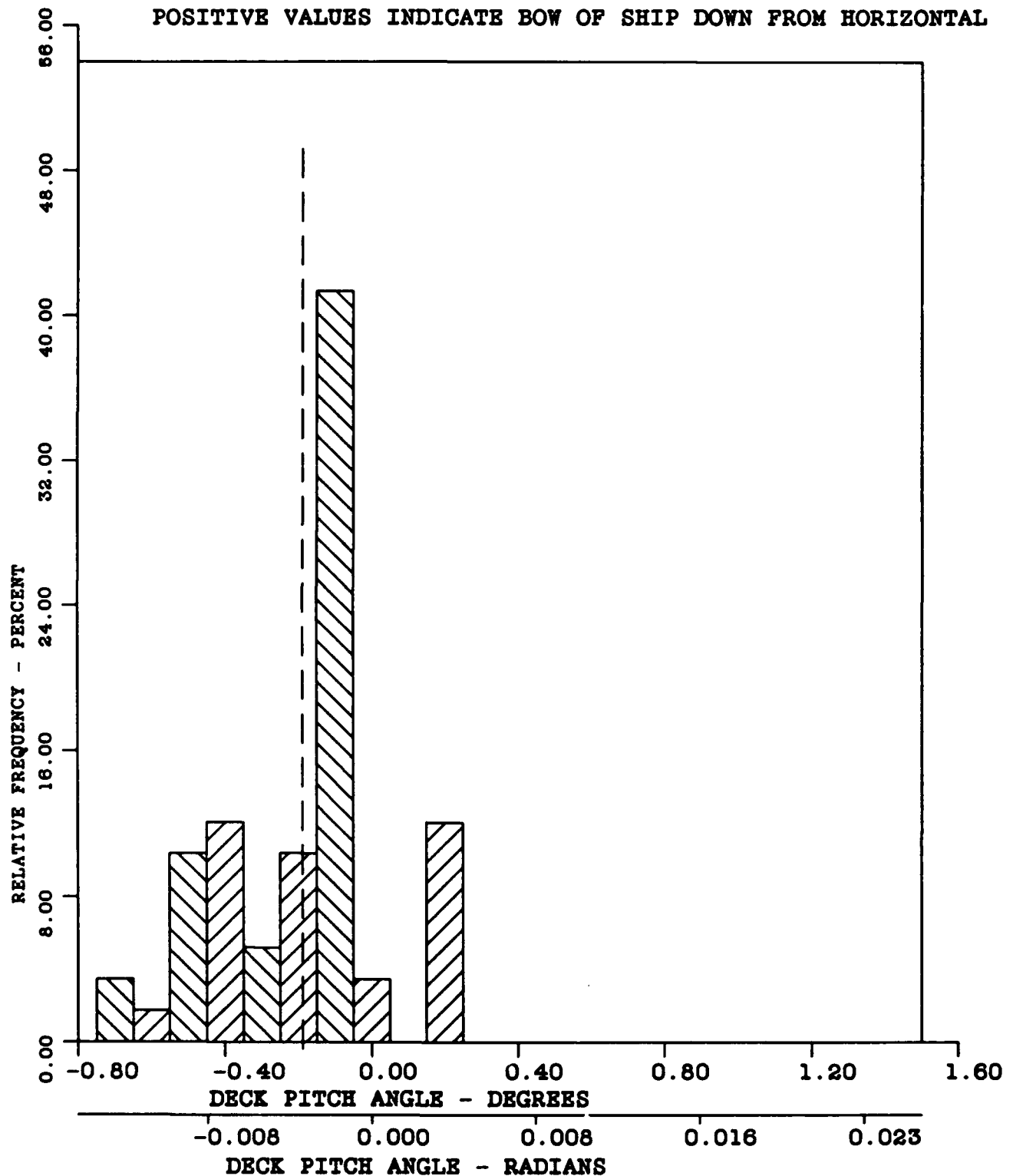


FIGURE I-31 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -0.19 DEGREES (-0.003 RADIANS)

A3--0.23

S= 0.23 DEGREES (0.004 RADIANS)

A4-2.68

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

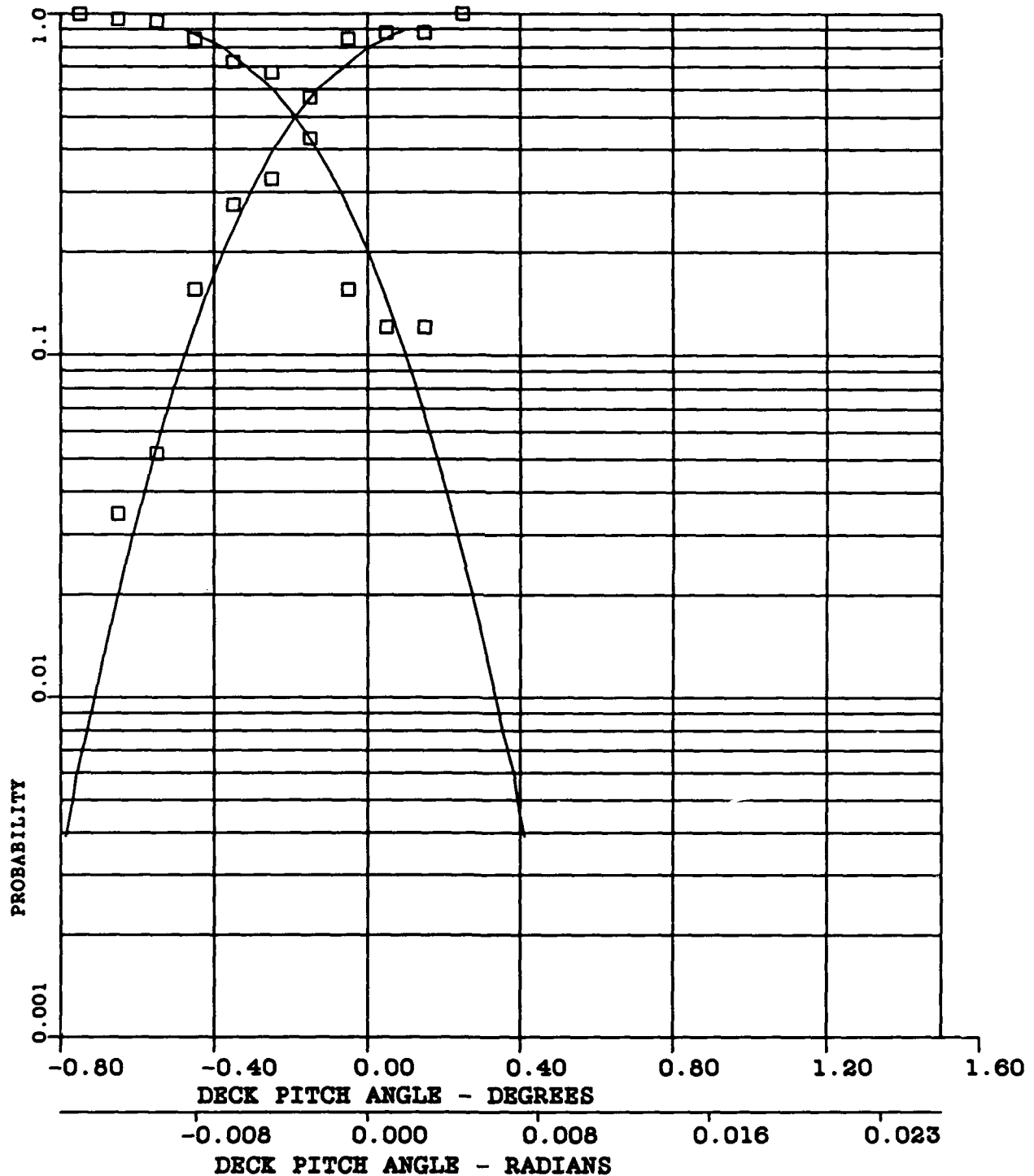


FIGURE I-32 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL A-7 AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

$\bar{X}$ -23524.90 POUNDS (10670.89 KILOGRAMS)

A3--1.45

S- 1279.69 POUNDS (580.47 KILOGRAMS)

A4-5.64

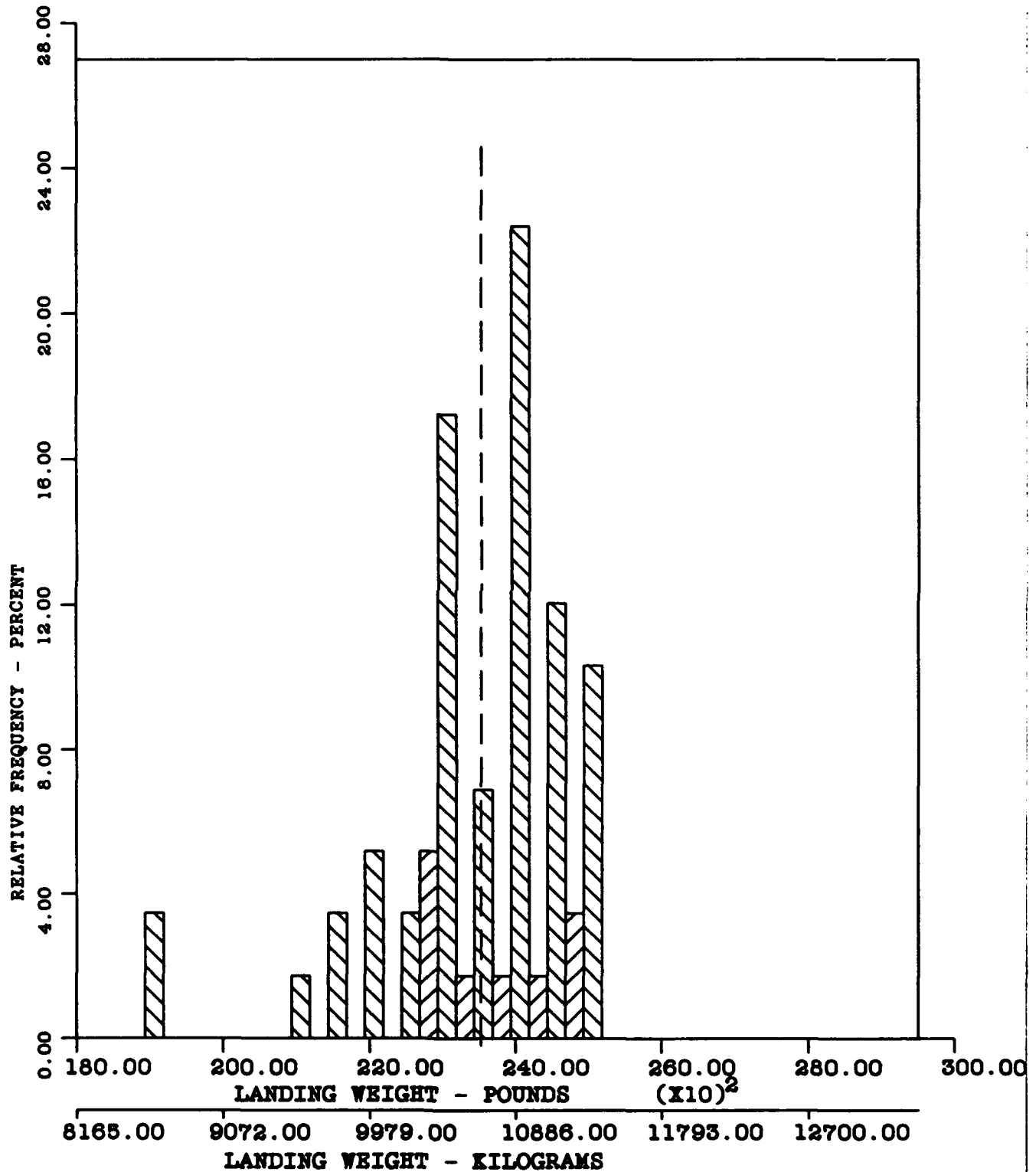


FIGURE I-33 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL A-7 AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

$\bar{X}$ -0.85 DEG/SEC (0.018 RAD/SEC)

S- 8.10 DEG/SEC (0.141 RAD/SEC)

A3--0.46

A4-3.12

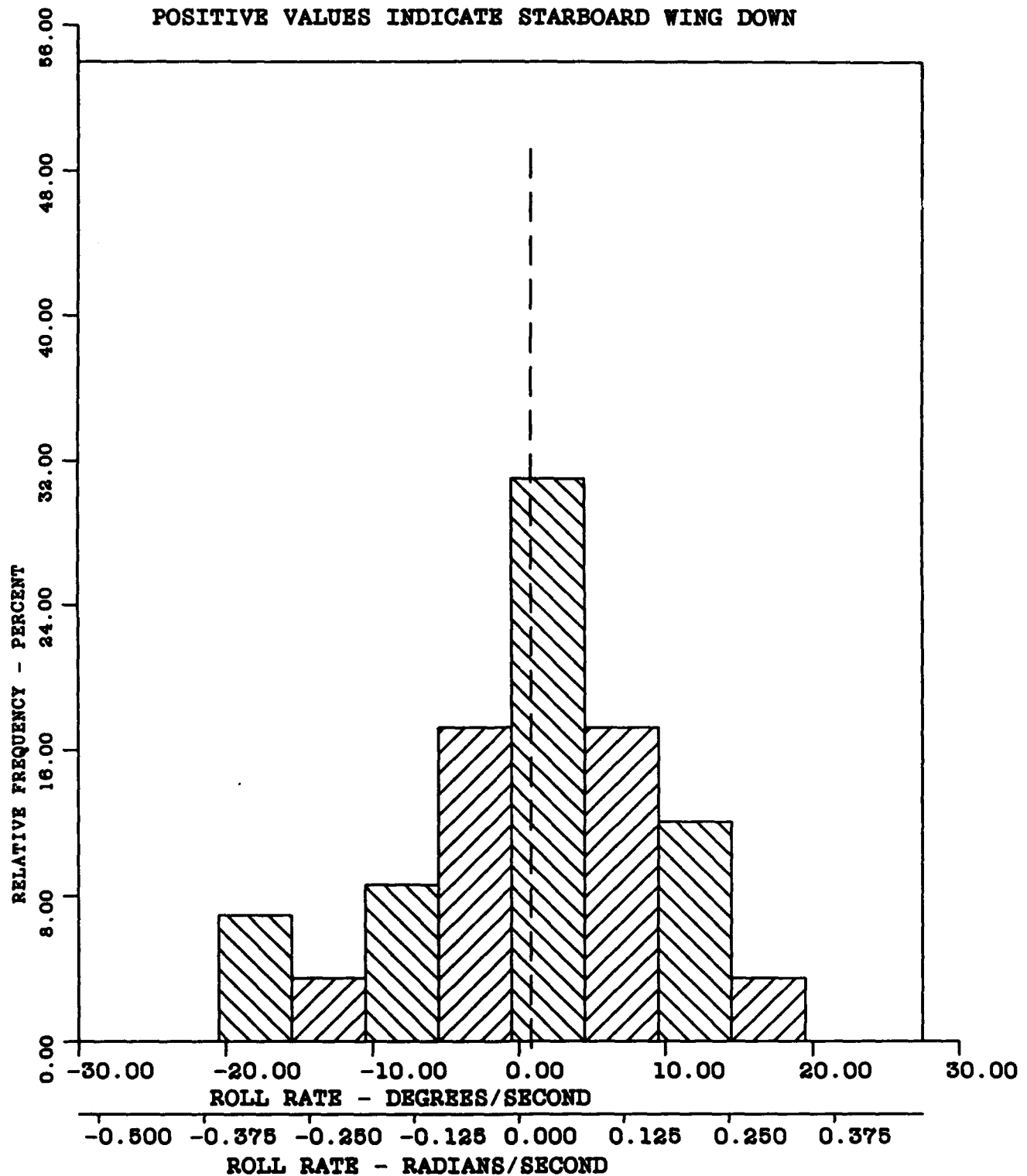


FIGURE I-34 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RAD/SEC)

N-58

 $\bar{X}$ -0.85 DEG/SEC (0.015 RAD/SEC)

A3--0.46

S- 8.10 DEG/SEC (0.141 RAD/SEC)

A4-3.12

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

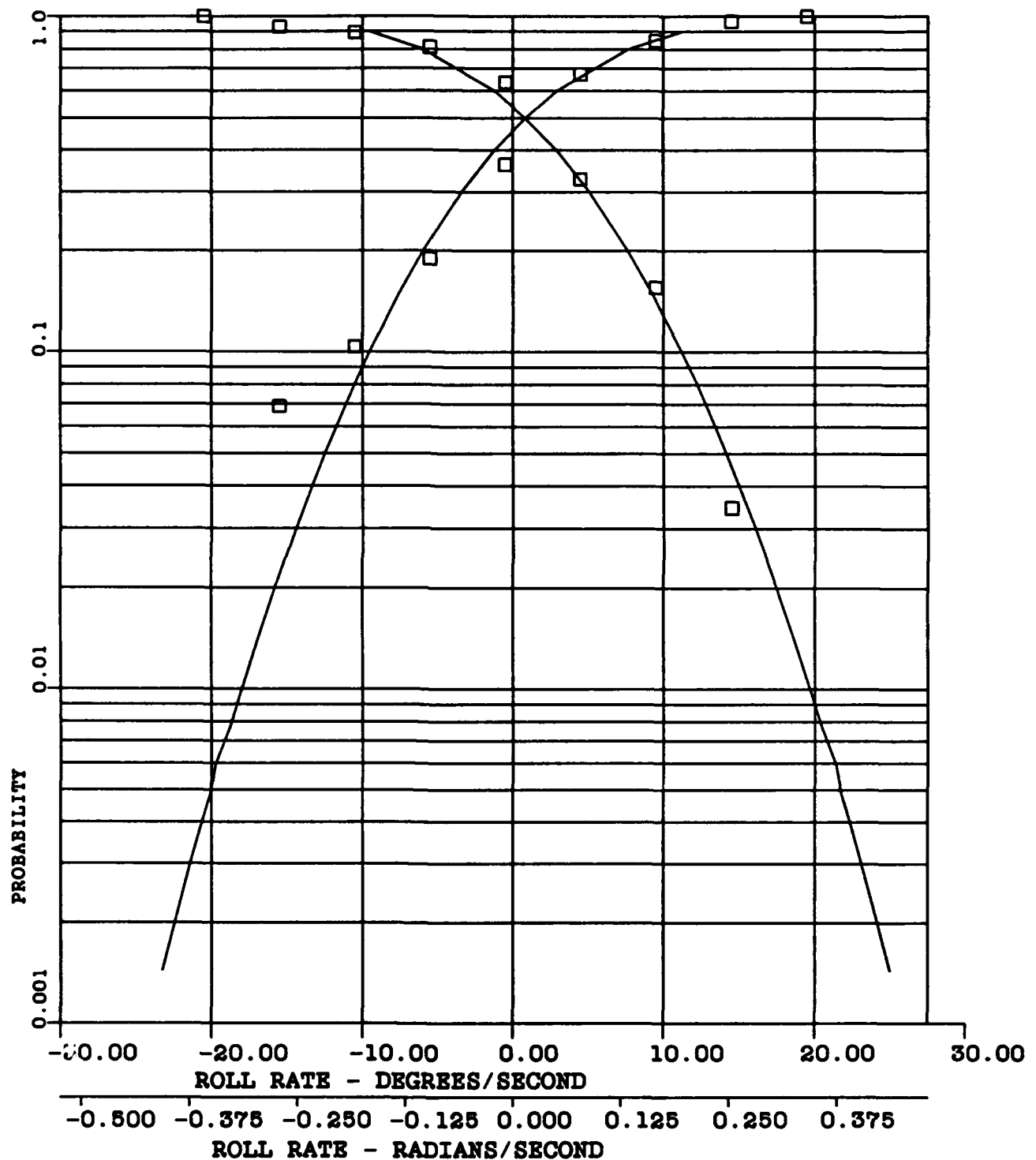


FIGURE 1-35 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -0.44 DEG/SEC (0.008 RAD/SEC)

A3-0.18

S- 3.00 DEG/SEC (0.052 RAD/SEC)

A4-3.60

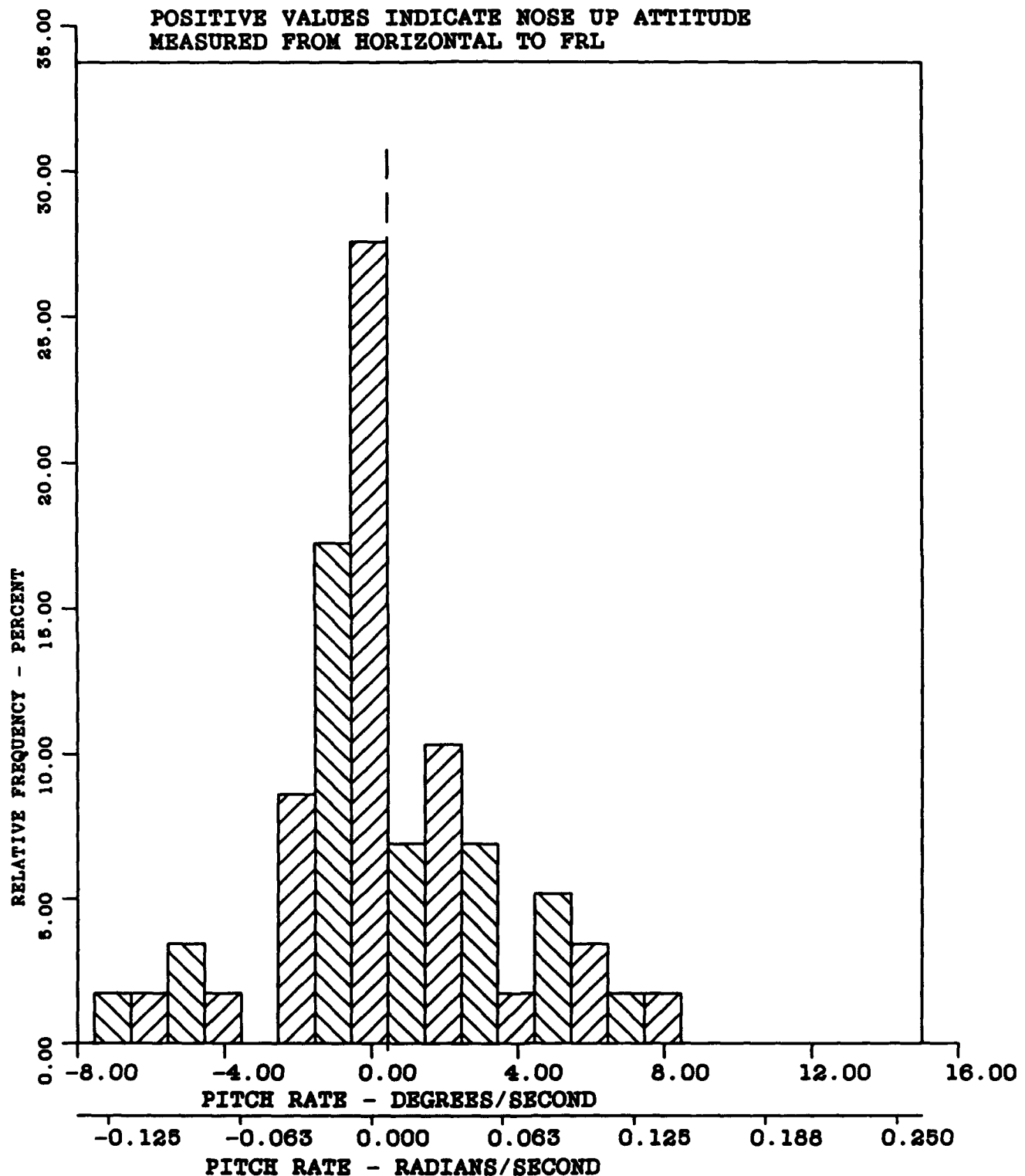


FIGURE 1-36 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL A-7 AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RAD/SEC)  
N-58

$\bar{X}$ -0.44 DEG/SEC (0.008 RAD/SEC)

A3-0.18

S- 3.00 DEG/SEC (0.052 RAD/SEC)

A4-3.60

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

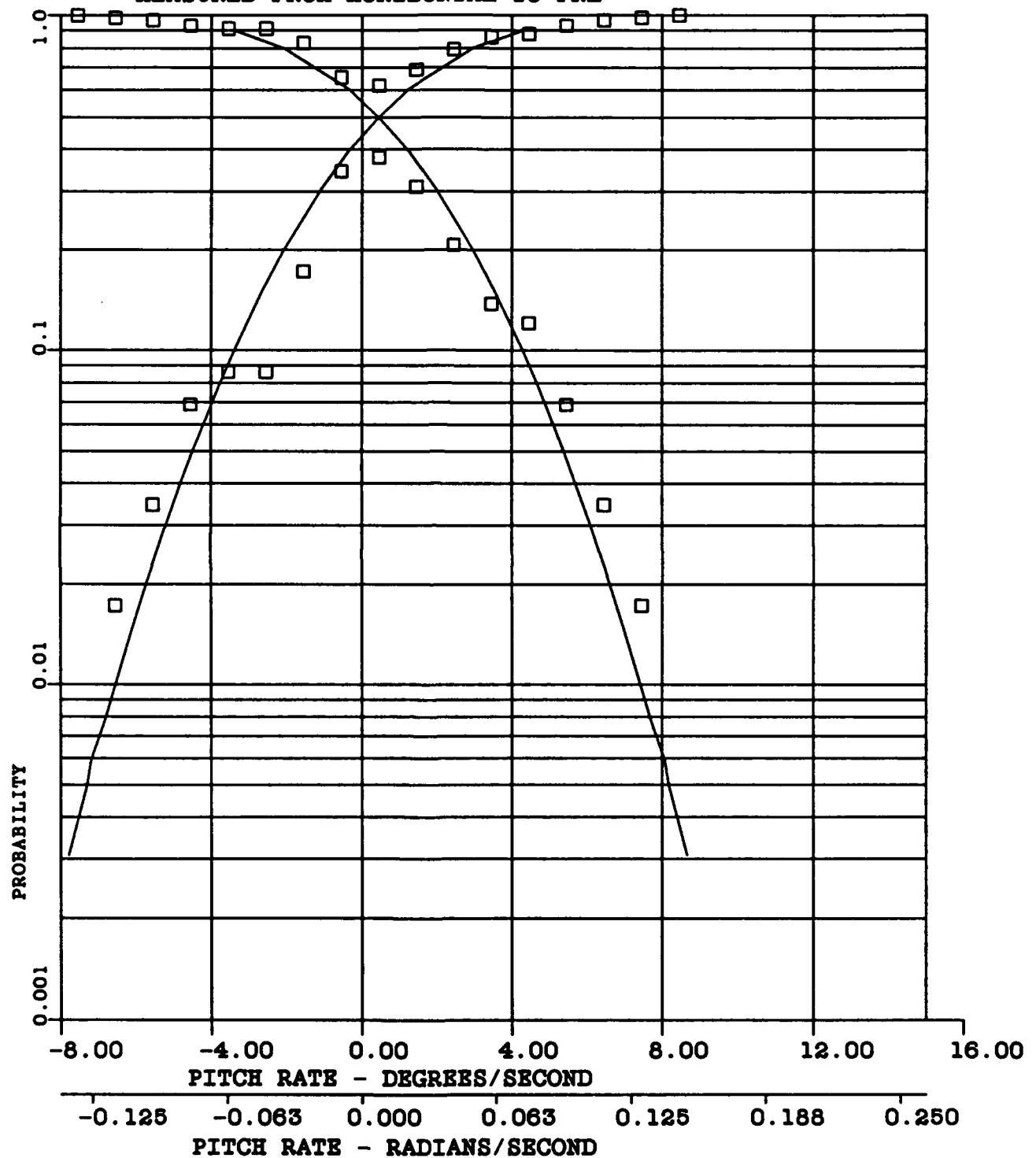


FIGURE I-37 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -3.26 DEGREES (-0.057 RADIANS)

A3-0.72

S- 2.22 DEGREES (0.039 RADIANS)

A4-4.51

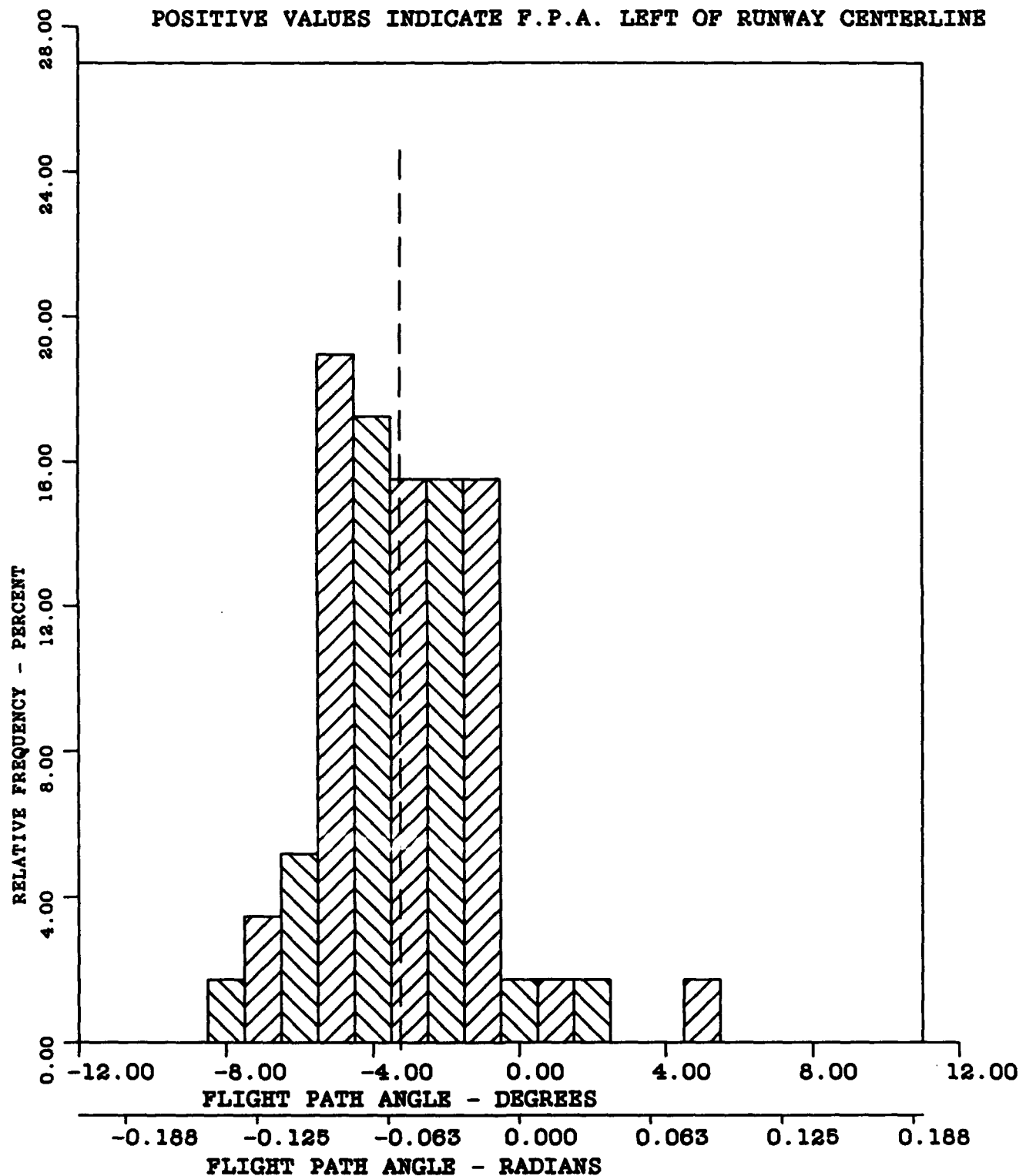


FIGURE 1-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL A-7 AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

$\bar{X}$ -3.26 DEGREES (-0.057 RADIANS)

A3-0.72

S- 2.22 DEGREES (0.039 RADIANS)

A4-4.51

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

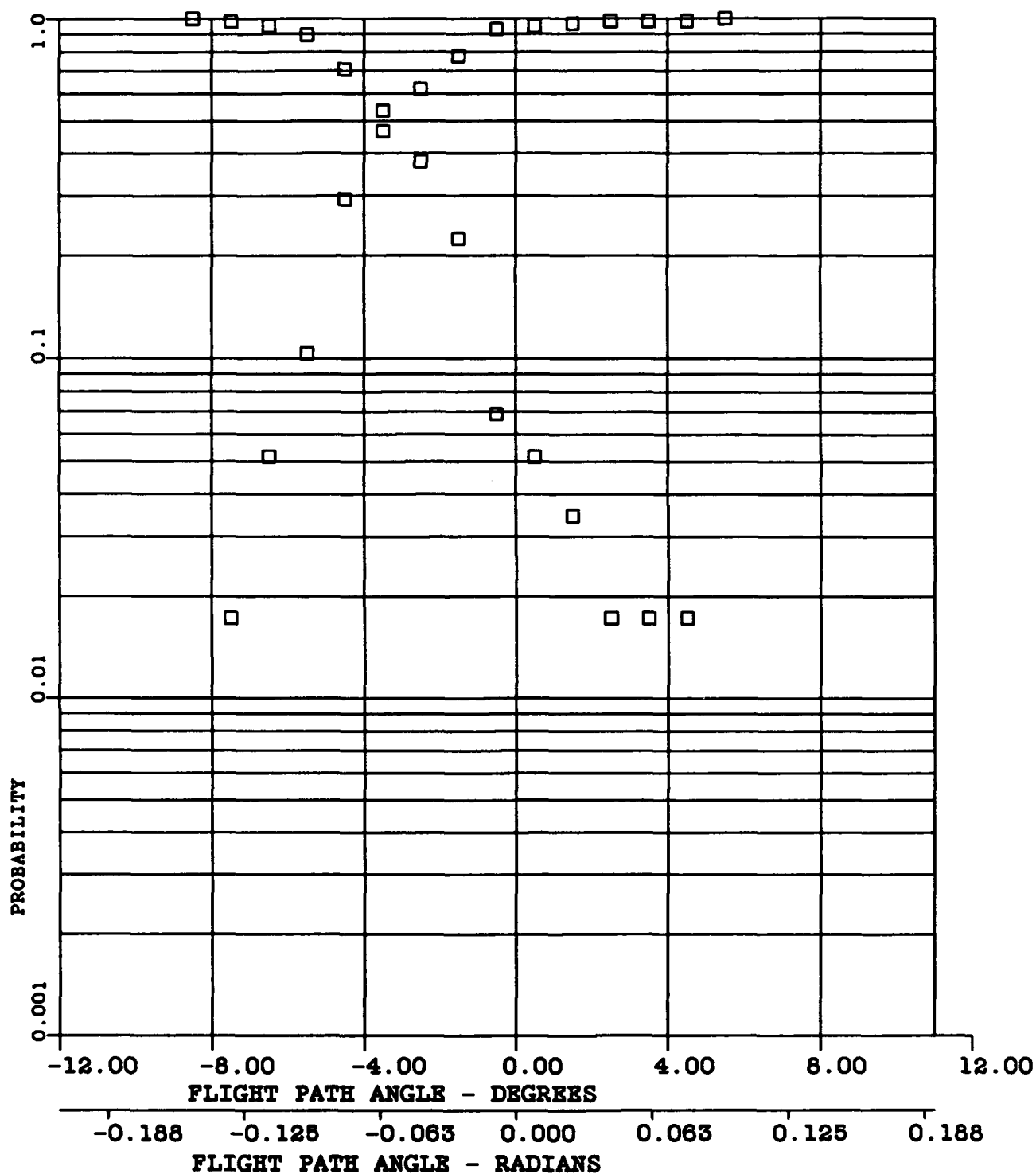


FIGURE 1-39 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-58

 $\bar{X}$ -5.54 DEGREES (0.097 RADIANS)

A3--0.37

S- 2.68 DEGREES (0.047 RADIANS)

A4-2.58

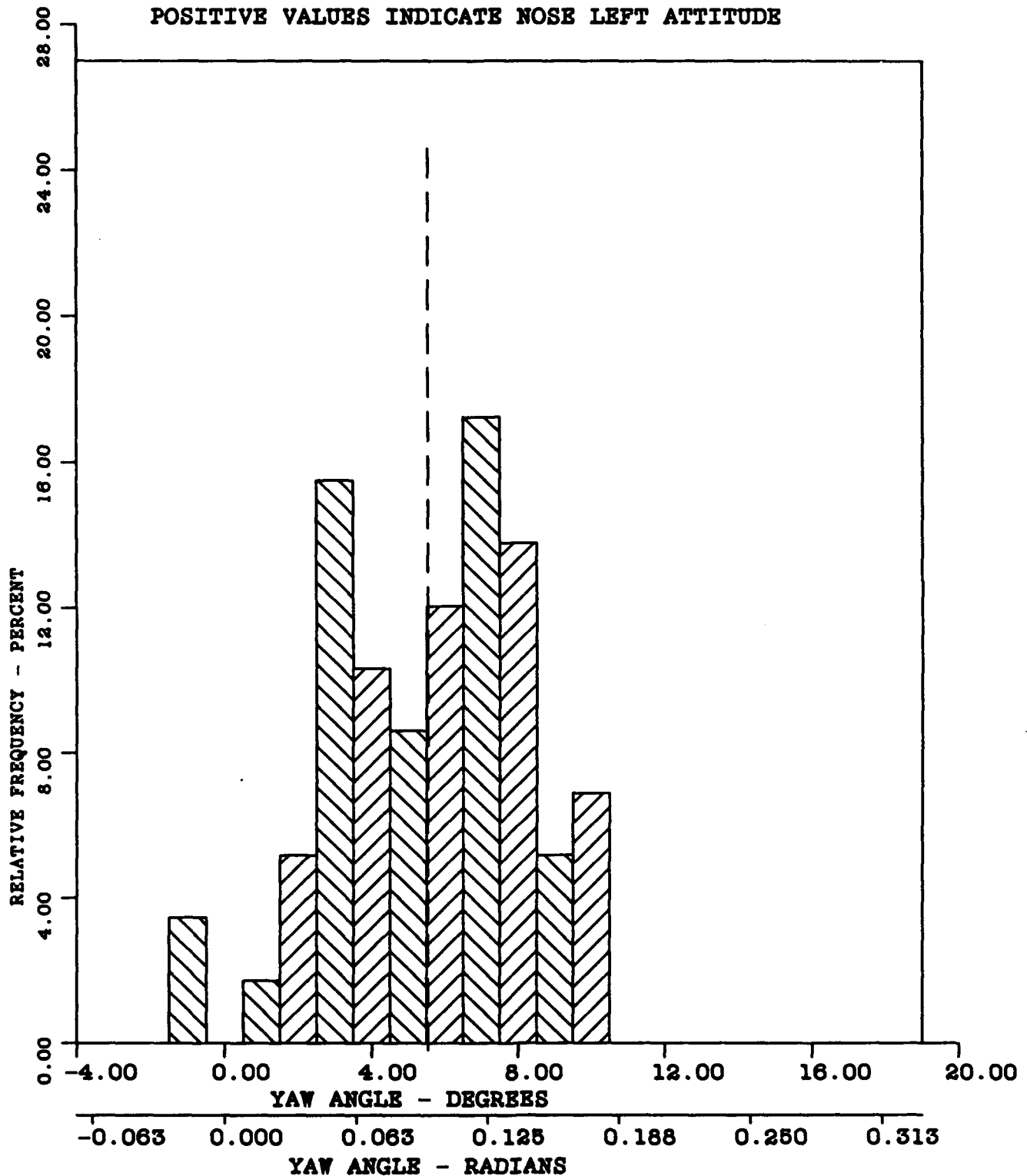


FIGURE 1-40 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL A-7 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=58

 $\bar{X}$ -5.54 DEGREES (0.097 RADIANS)

A3--0.37

S= 2.68 DEGREES (0.047 RADIANS)

A4-2.58

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

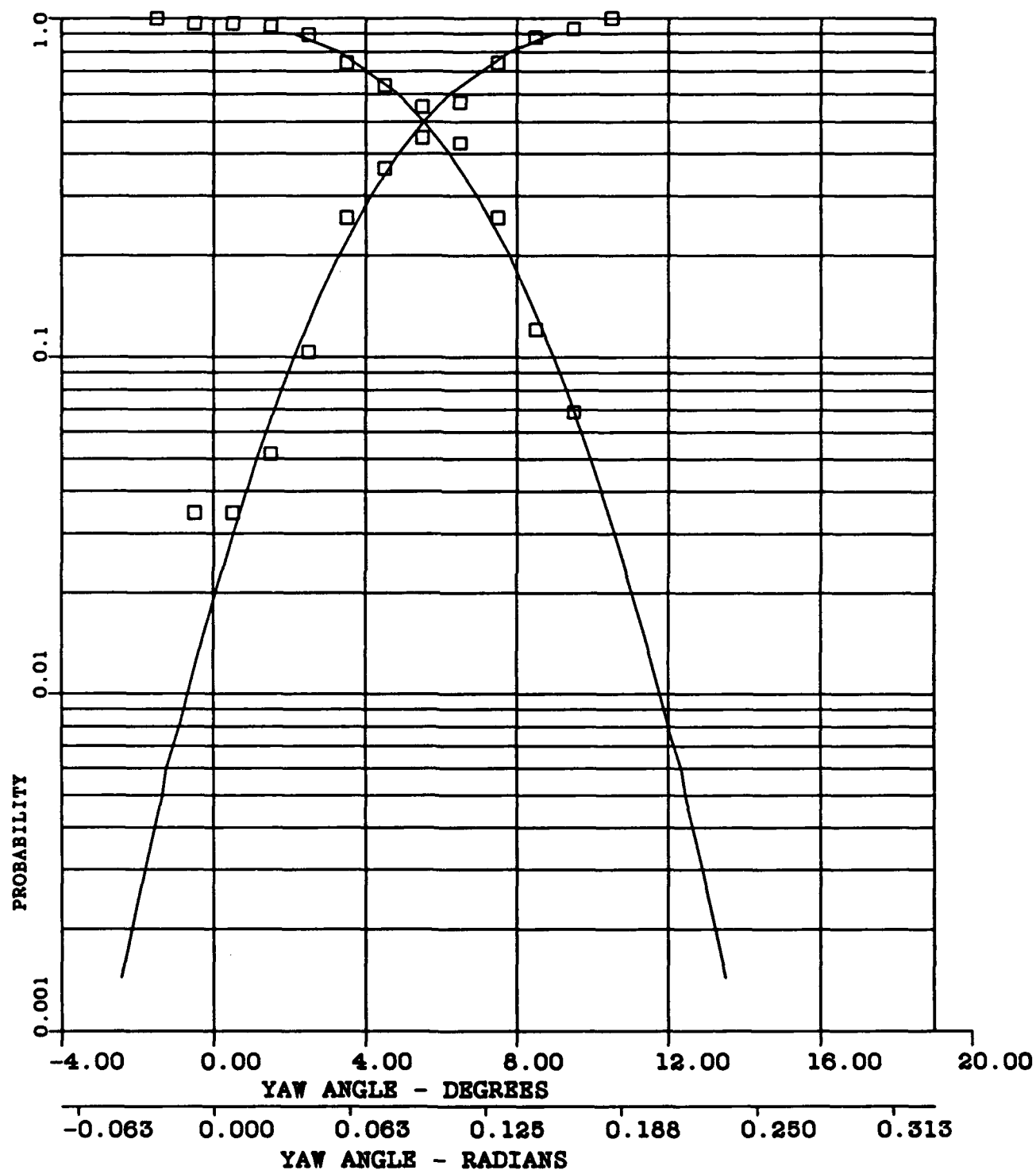


FIGURE I-41 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX J**

**EA-6B AIRCRAFT**

**DAY CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

## Appendix J:

Frequency and Probability Distributions,  
EA-6B Aircraft, Day Landings

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MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -26.89 KNOTS (13.83 METRES/SEC)

A3-0.02

S-3.66 KNOTS (1.88 METRES/SEC)

A4-1.62

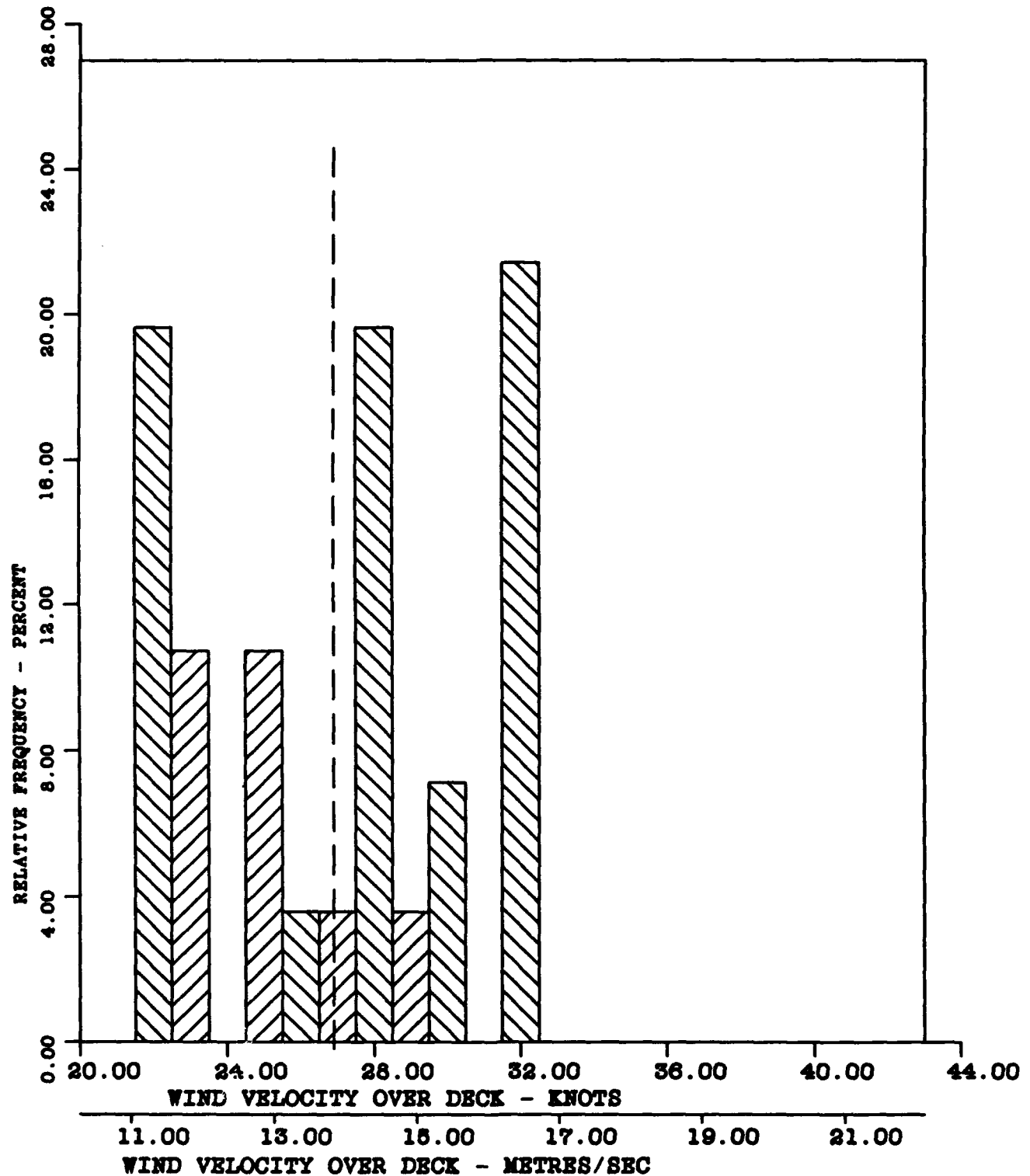


FIGURE J-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -26.89 KNOTS (13.83 METRES/SEC)

A3-0.02

S-3.66 KNOTS (1.88 METRES/SEC)

A4-1.62

CURVE FITTED - NORMAL

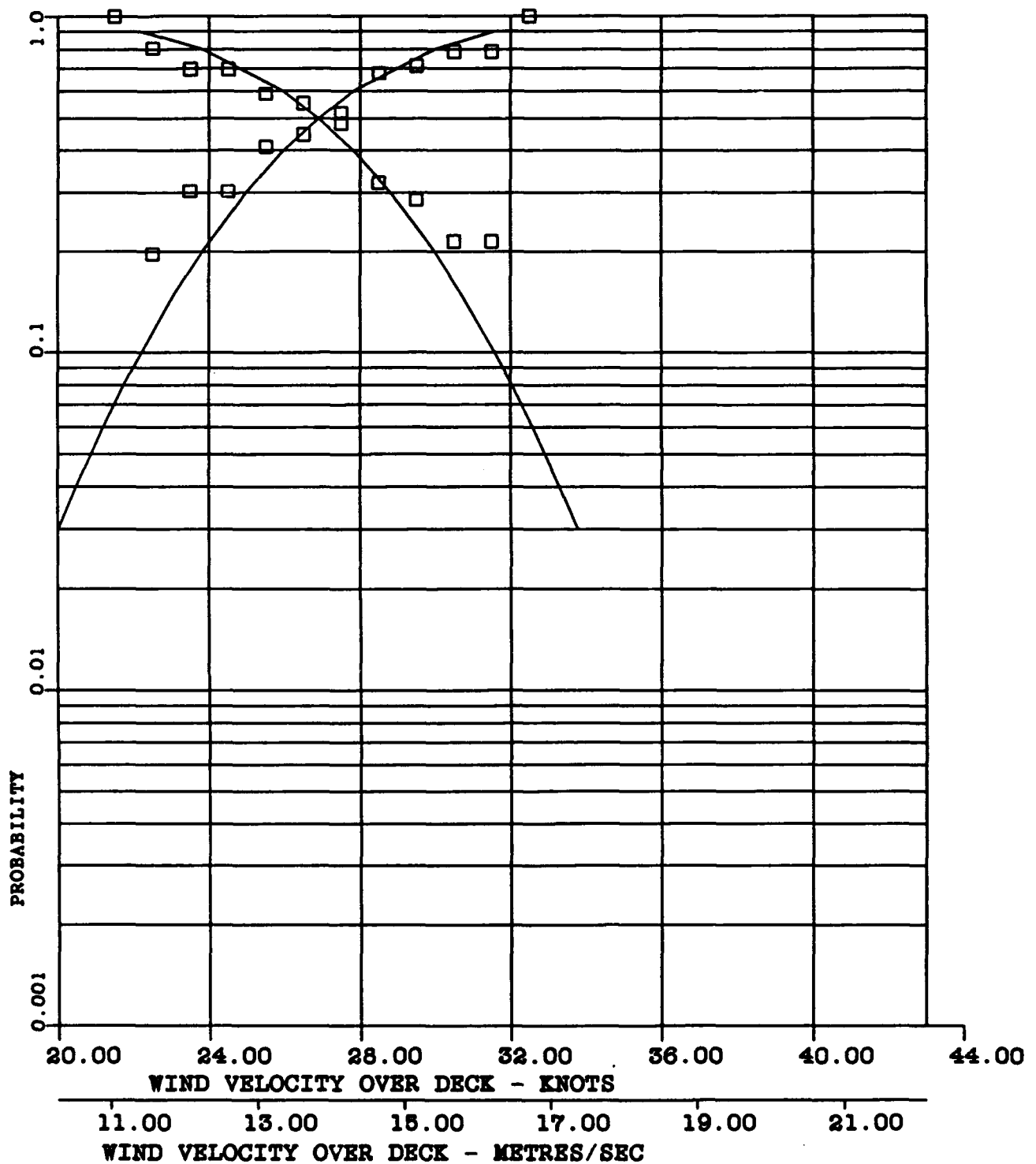


FIGURE J-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-66)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -134.04 KNOTS (68.95 METRES/SEC)

A3-0.16

S-6.08 KNOTS (3.13 METRES/SEC)

A4-2.55

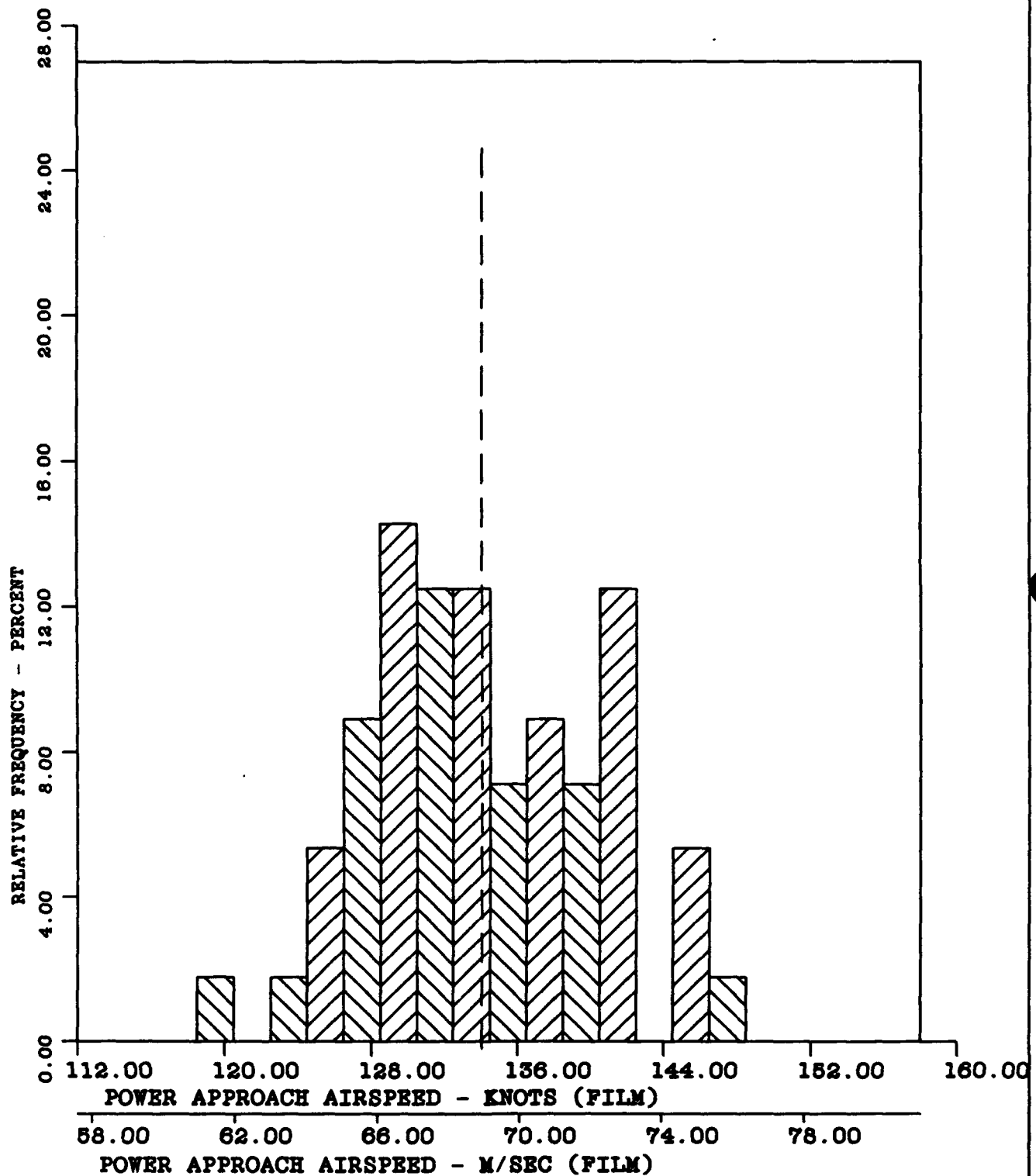


FIGURE J-3. FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -134.04 KNOTS (68.95 METRES/SEC)

A3-0.16

S-6.08 KNOTS (3.13 METRES/SEC)

A4-2.55

CURVE FITTED - NORMAL

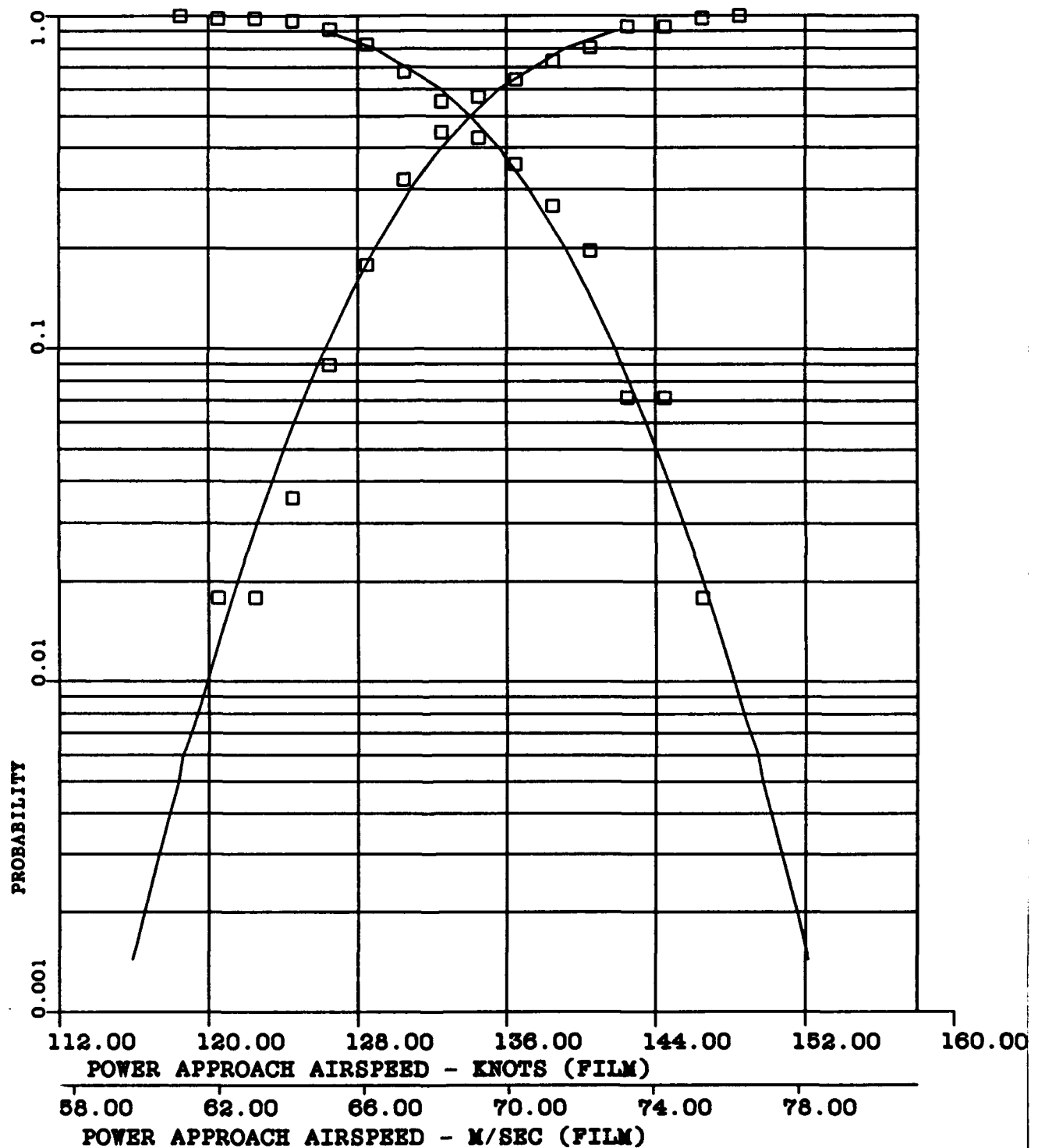


FIGURE J-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL RA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -15.76 FEET (4.80 METRES)

A3-0.71

S-2.27 FEET (0.69 METRES)

A4-3.46

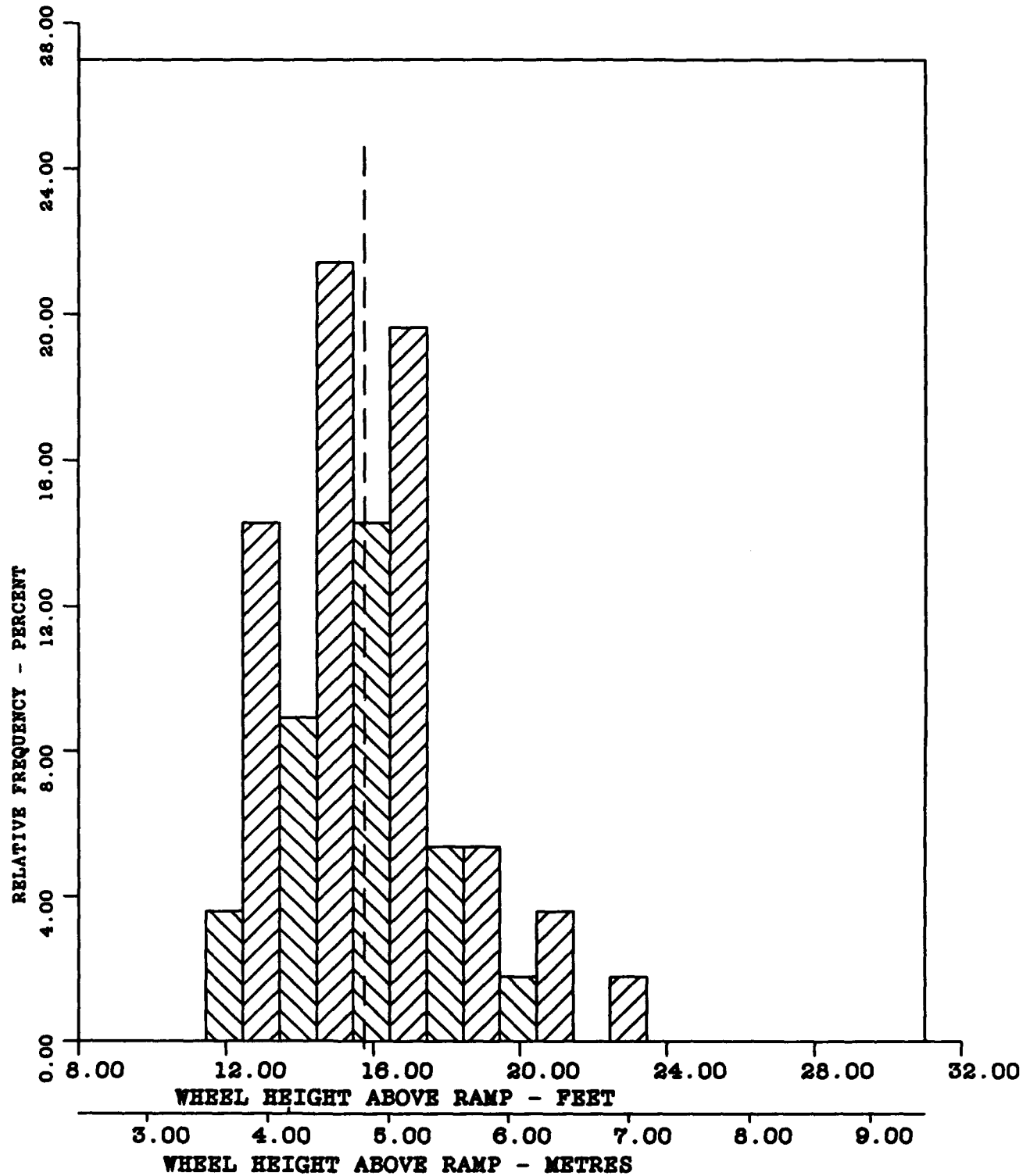


FIGURE J-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -16.76 FEET (4.80 METRES)

A3-0.71

S-2.27 FEET (0.69 METRES)

A4-3.46

CURVE FITTED - PEARSON TYPE III

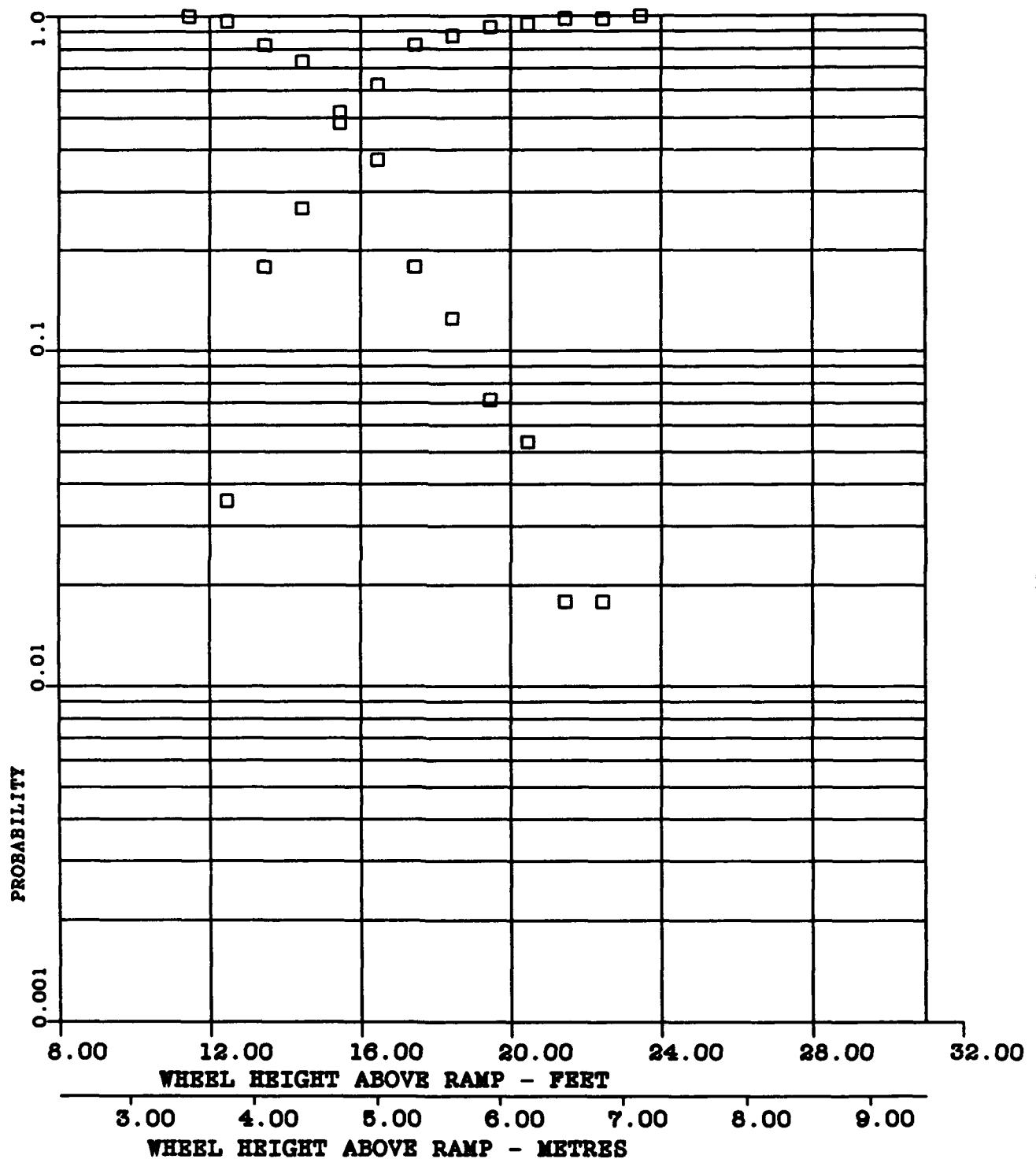


FIGURE J-6 PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL RA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -6.56 FEET/SEC (2.00 METRES/SEC)

A3--0.23

S-3.42 FEET/SEC (1.04 METRES/SEC)

A4-1.79

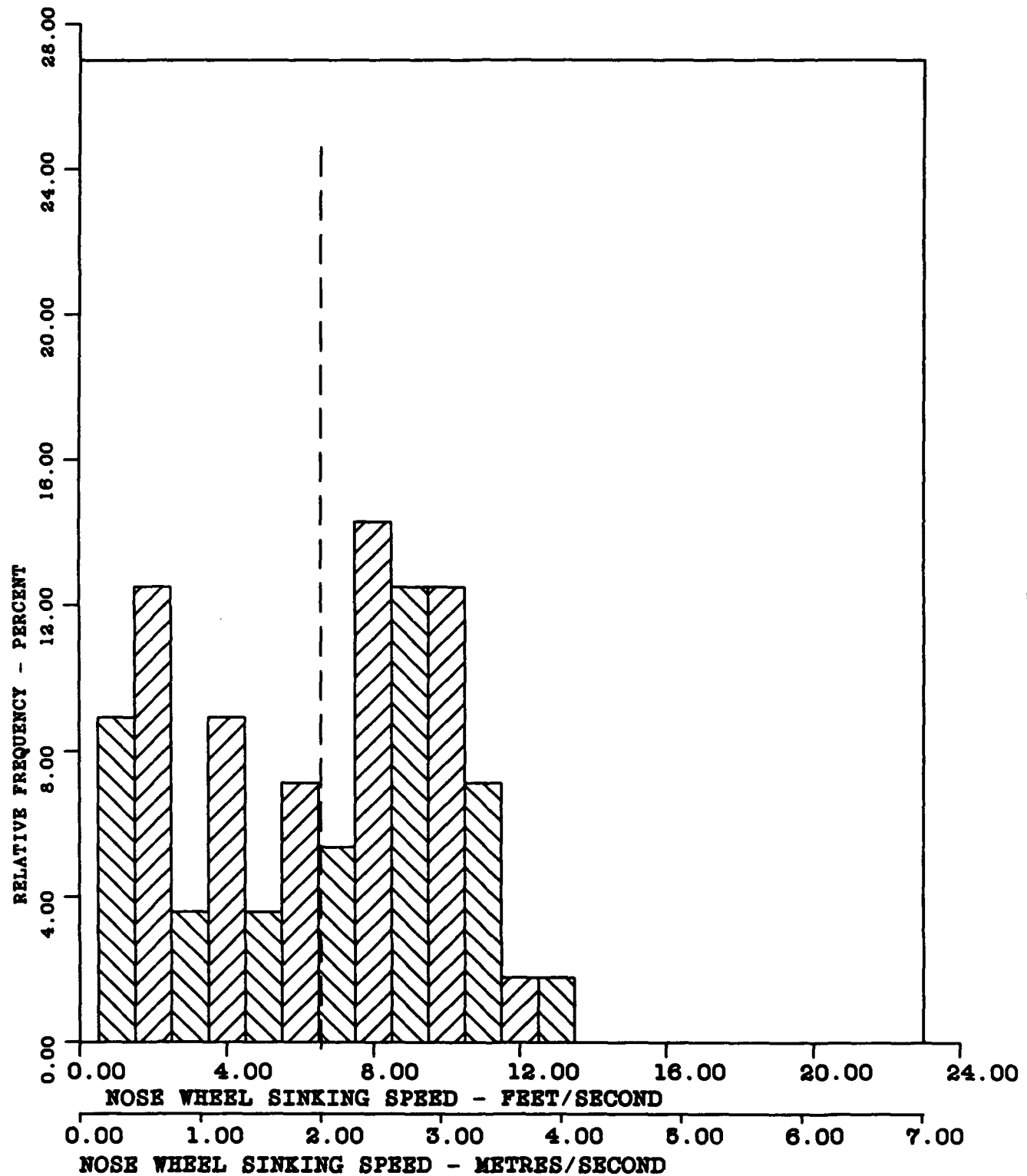


FIGURE J-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -6.56 FEET/SEC (2.00 METRES/SEC)

A3--0.23

S-3.42 FEET/SEC (1.04 METRES/SEC)

A4-1.79

CURVE FITTED - NORMAL

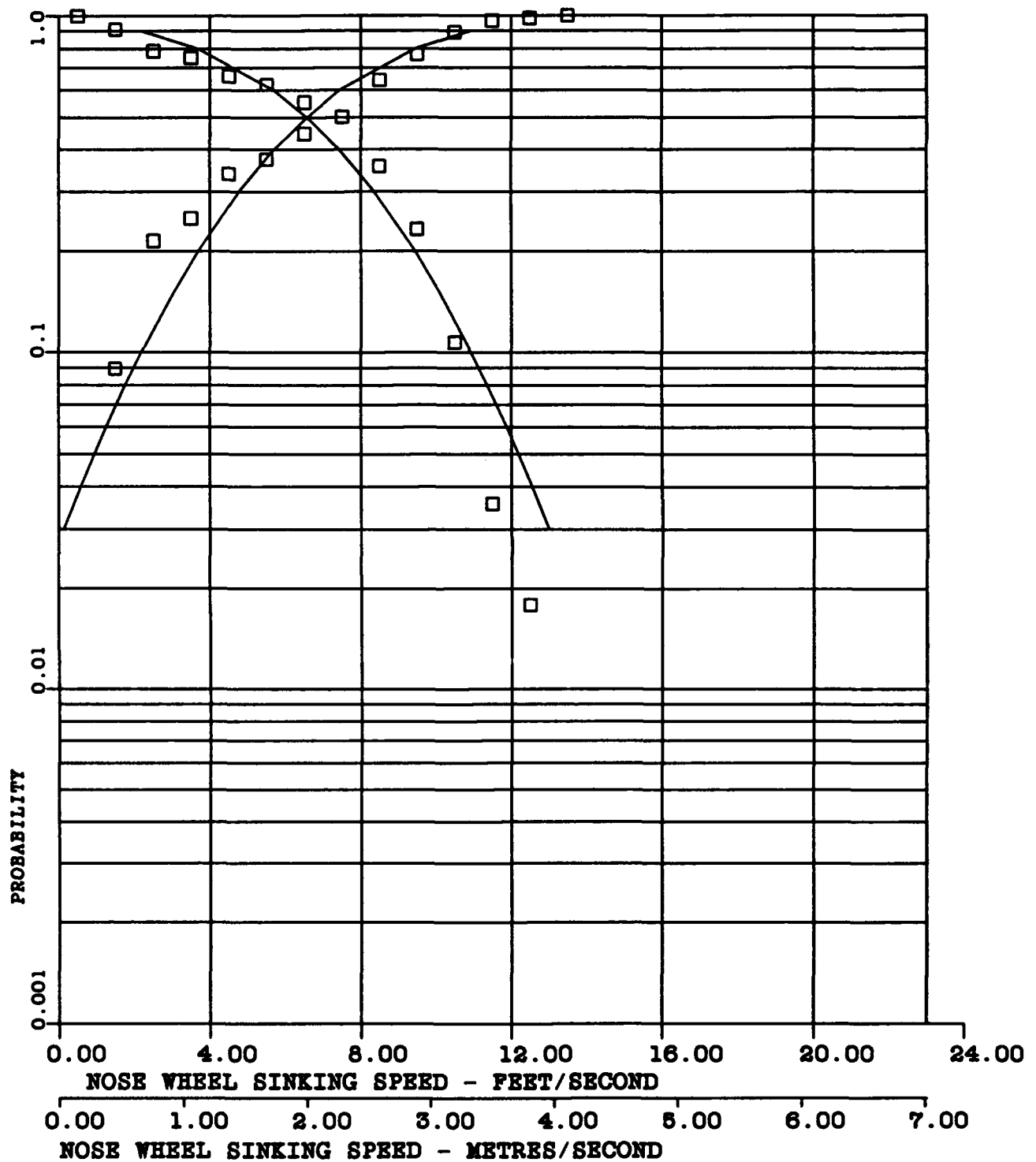


FIGURE J-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -10.60 FEET/SEC (3.23 METRES/SEC)

A3--0.17

S-1.86 FEET/SEC (0.57 METRES/SEC)

A4-2.76

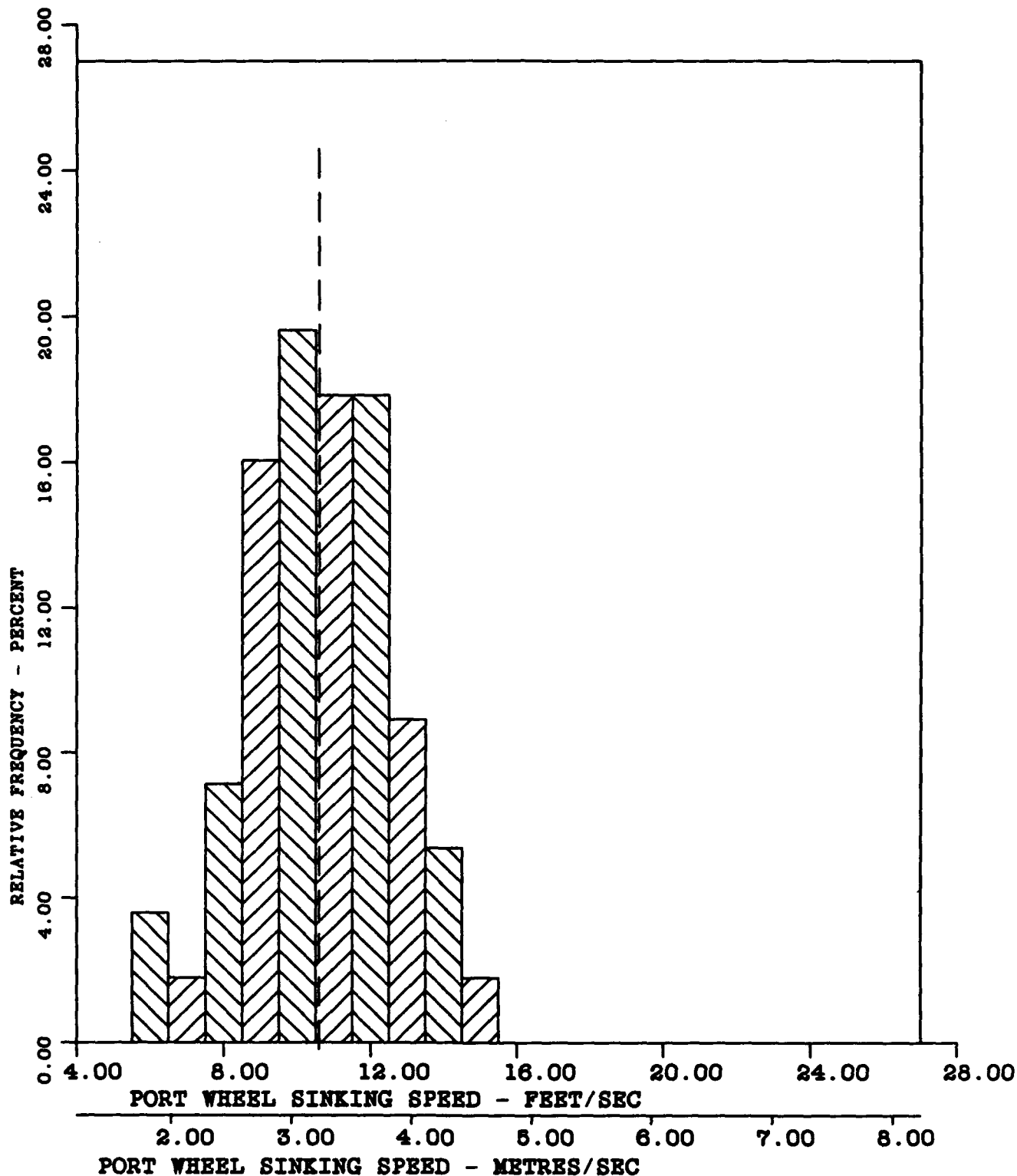


FIGURE J-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -10.60 FEET/SEC (3.23 METRES/SEC)

A3--0.17

S-1.86 FEET/SEC (0.57 METRES/SEC)

A4-2.76

CURVE FITTED - NORMAL

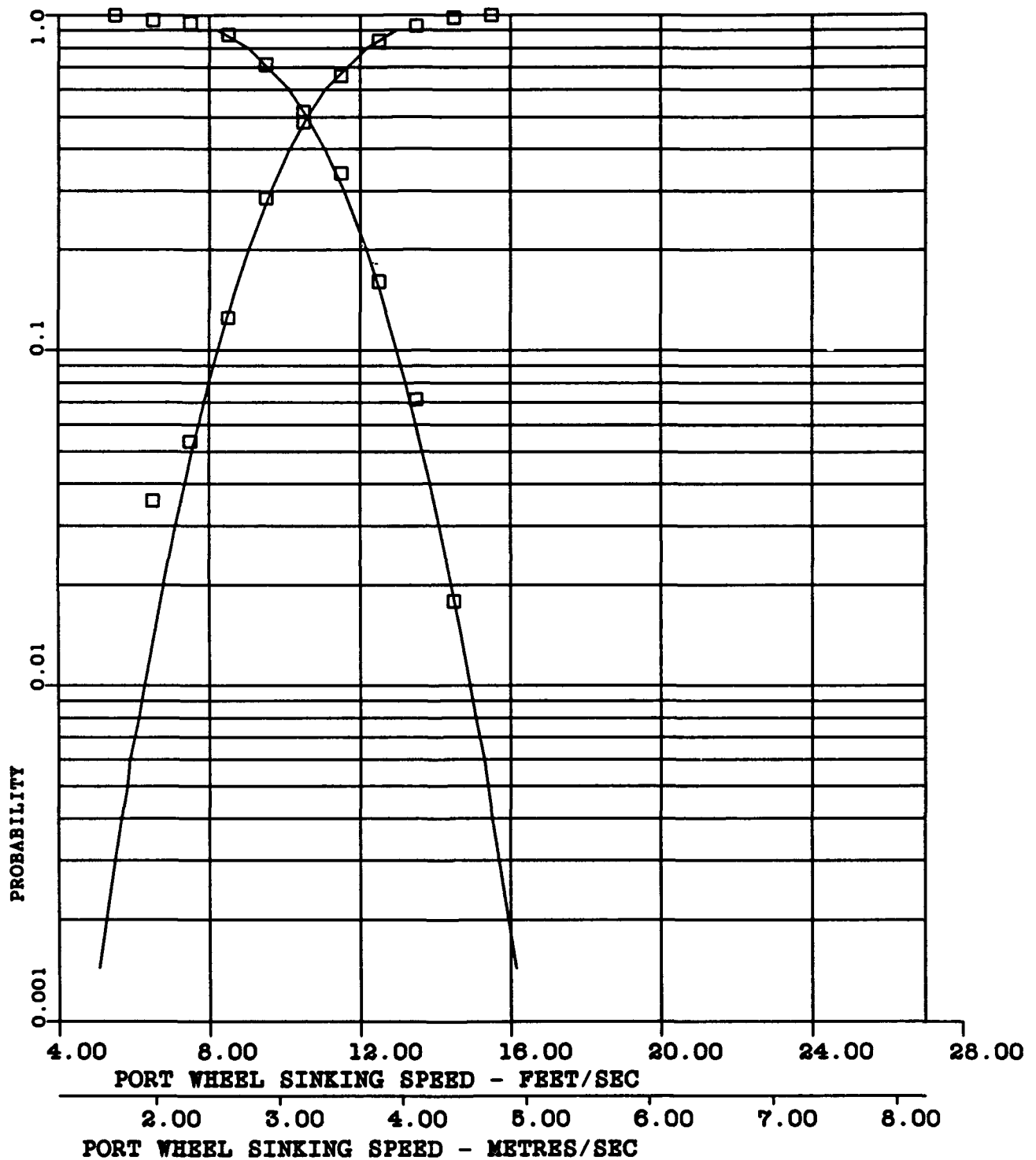


FIGURE J-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -10.26 FEET/SEC (3.13 METRES/SEC)

A3-0.51

S-1.81 FEET/SEC (0.55 METRES/SEC)

A4-3.39

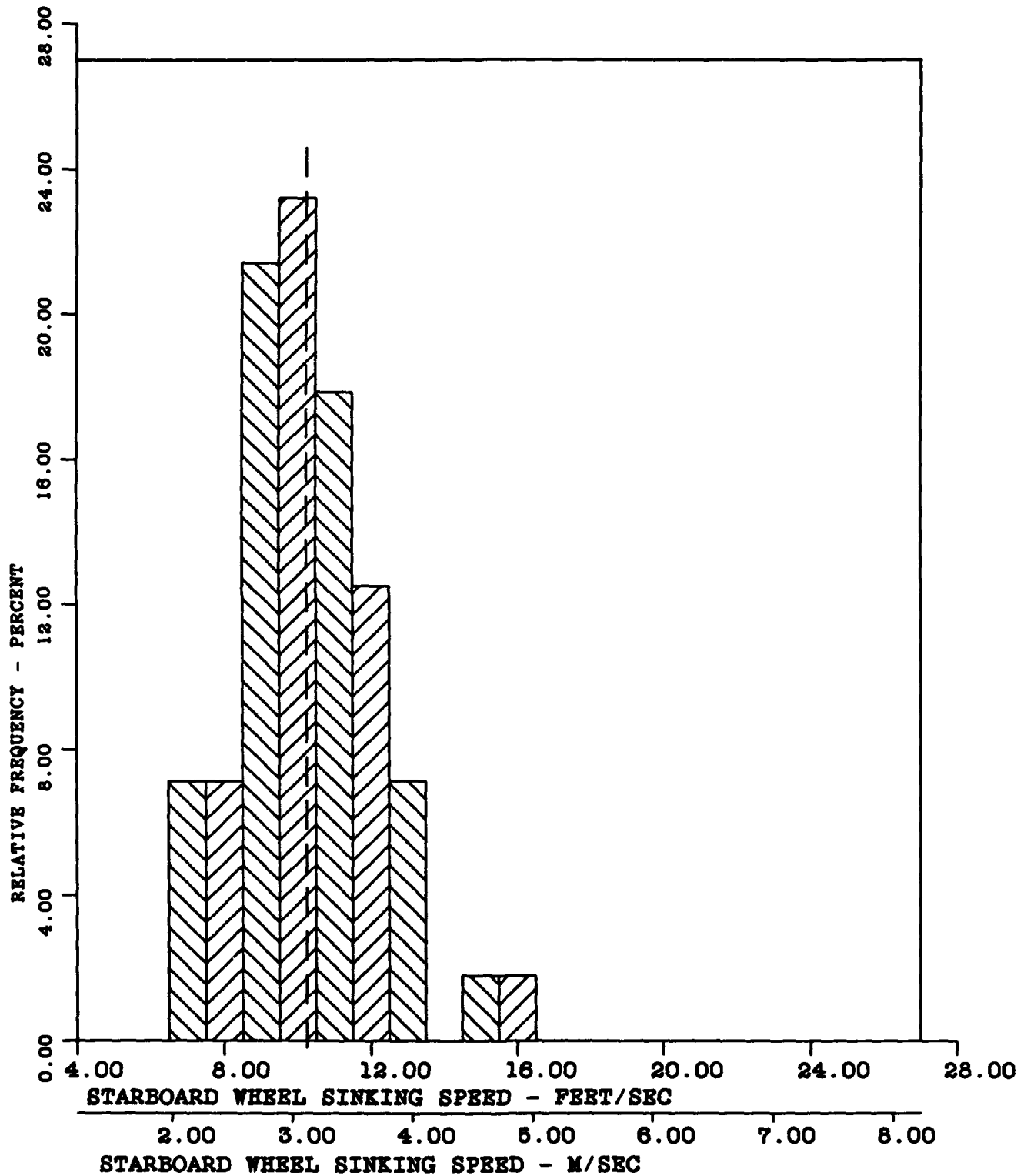


FIGURE J-11 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -10.26 FEET/SEC (3.13 METRES/SEC)

A3-0.51

S-1.81 FEET/SEC (0.55 METRES/SEC)

A4-3.39

CURVE FITTED - NORMAL

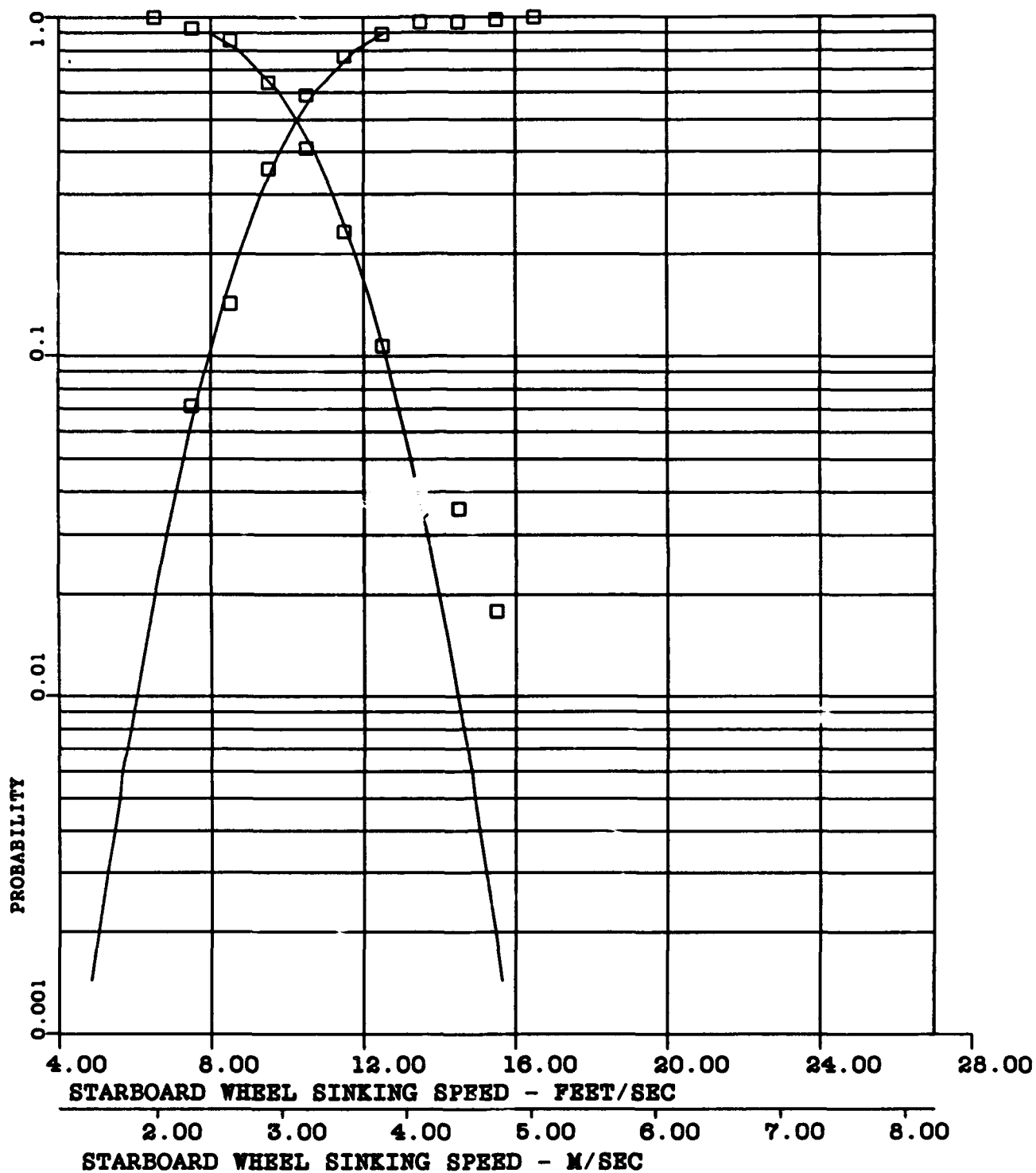


FIGURE J-12 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -10.43 FEET/SEC (3.18 METRES/SEC)

A3-0.03

S-1.73 FEET/SEC (0.53 METRES/SEC)

A4-2.77

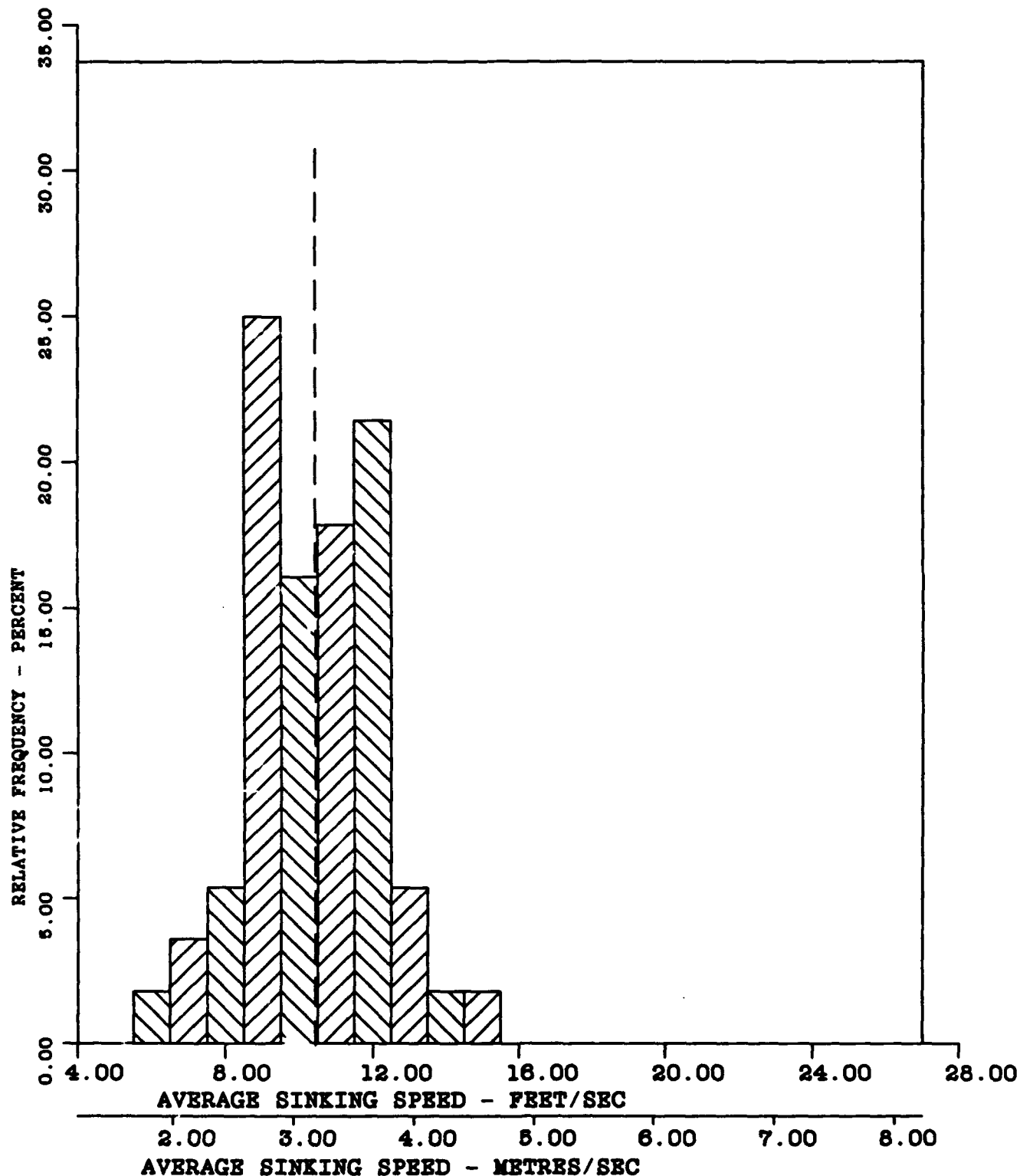


FIGURE J-13 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -10.43 FEET/SEC (3.18 METRES/SEC)

A3-0.03

S-1.73 FEET/SEC (0.53 METRES/SEC)

A4-2.77

CURVE FITTED - NORMAL

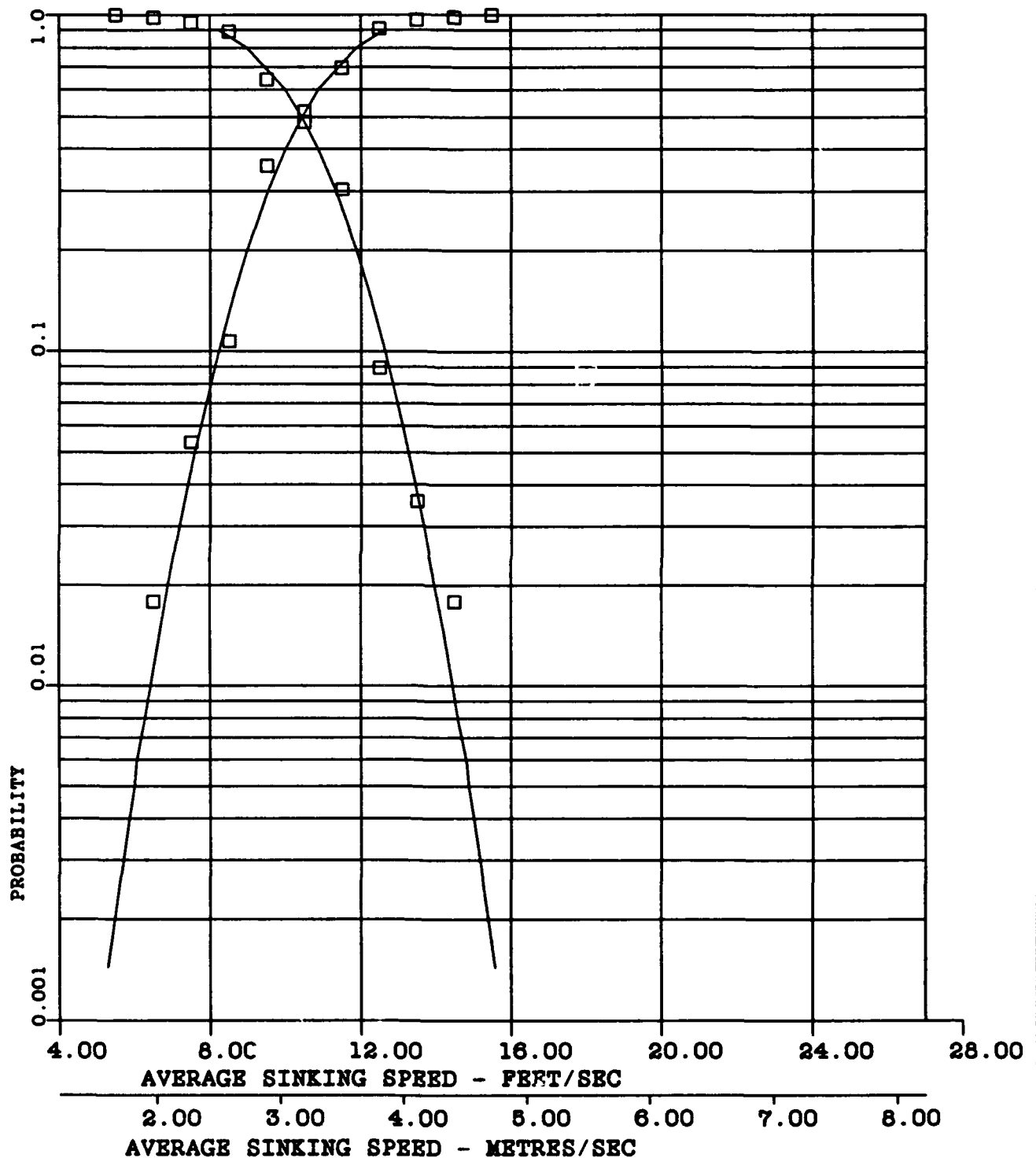


FIGURE J-14 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-5

 $\bar{X}$ -8.20 FEET/SEC (2.50 METRES/SEC)

A3-0.22

S-1.63 FEET/SEC (0.50 METRES/SEC)

A4-1.38

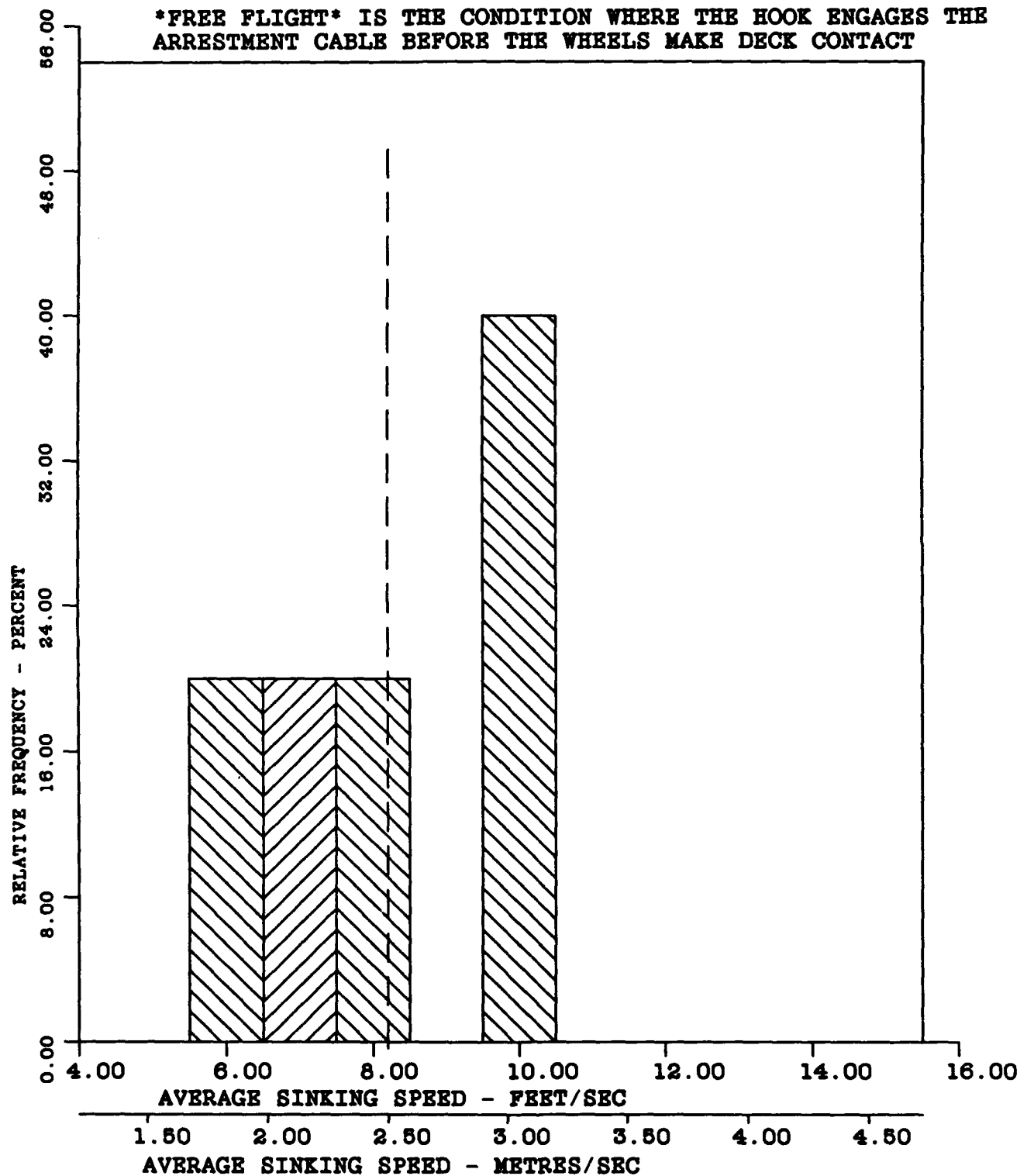


FIGURE J-15 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-5

 $\bar{X}$ -8.20 FEET/SEC (2.50 METRES/SEC)

A3-0.22

S-1.63 FEET/SEC (0.50 METRES/SEC)

A4-1.38

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

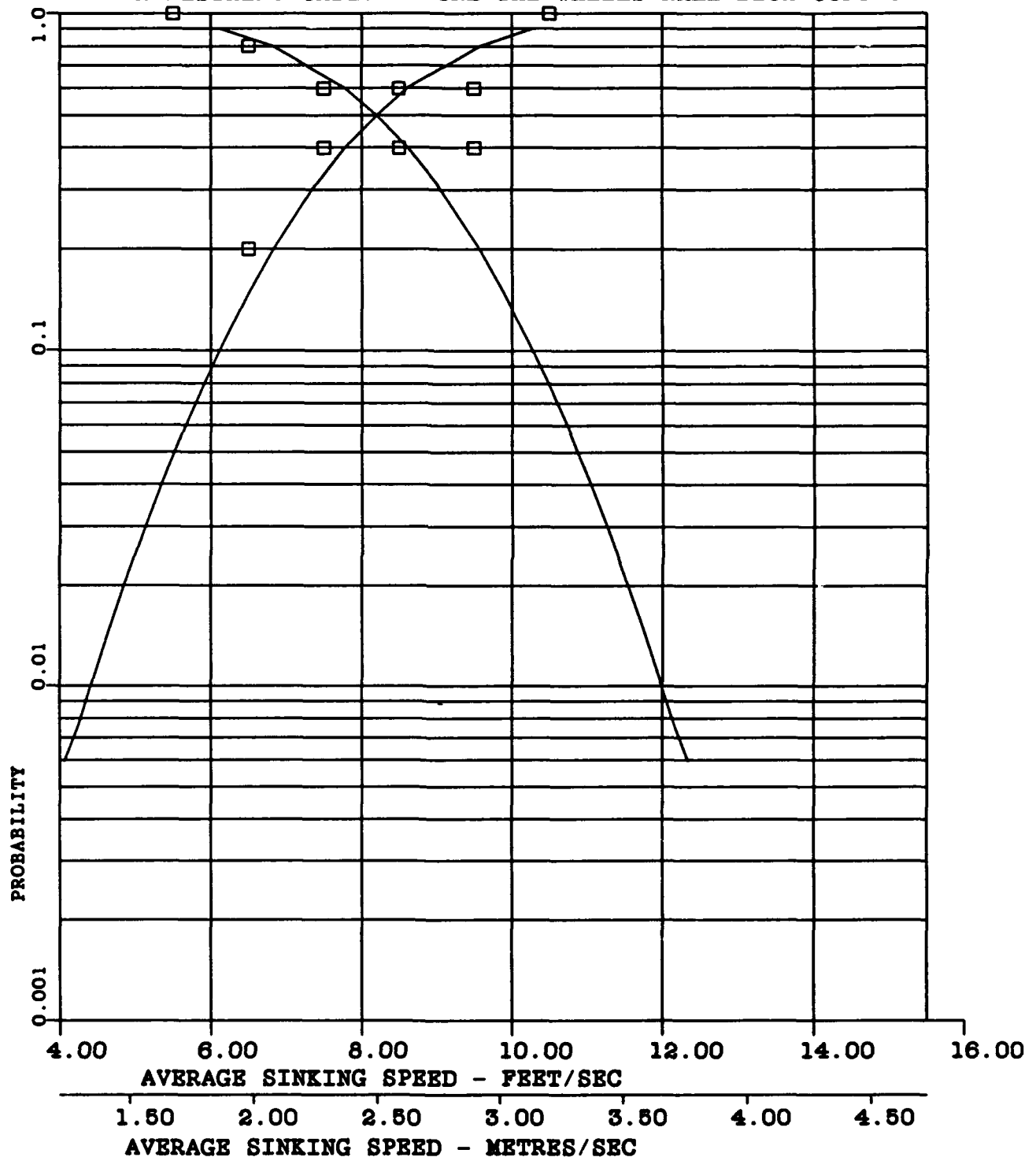


FIGURE J-16 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-66)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -1.03

S-0.09

A3-0.19

A4-2.18

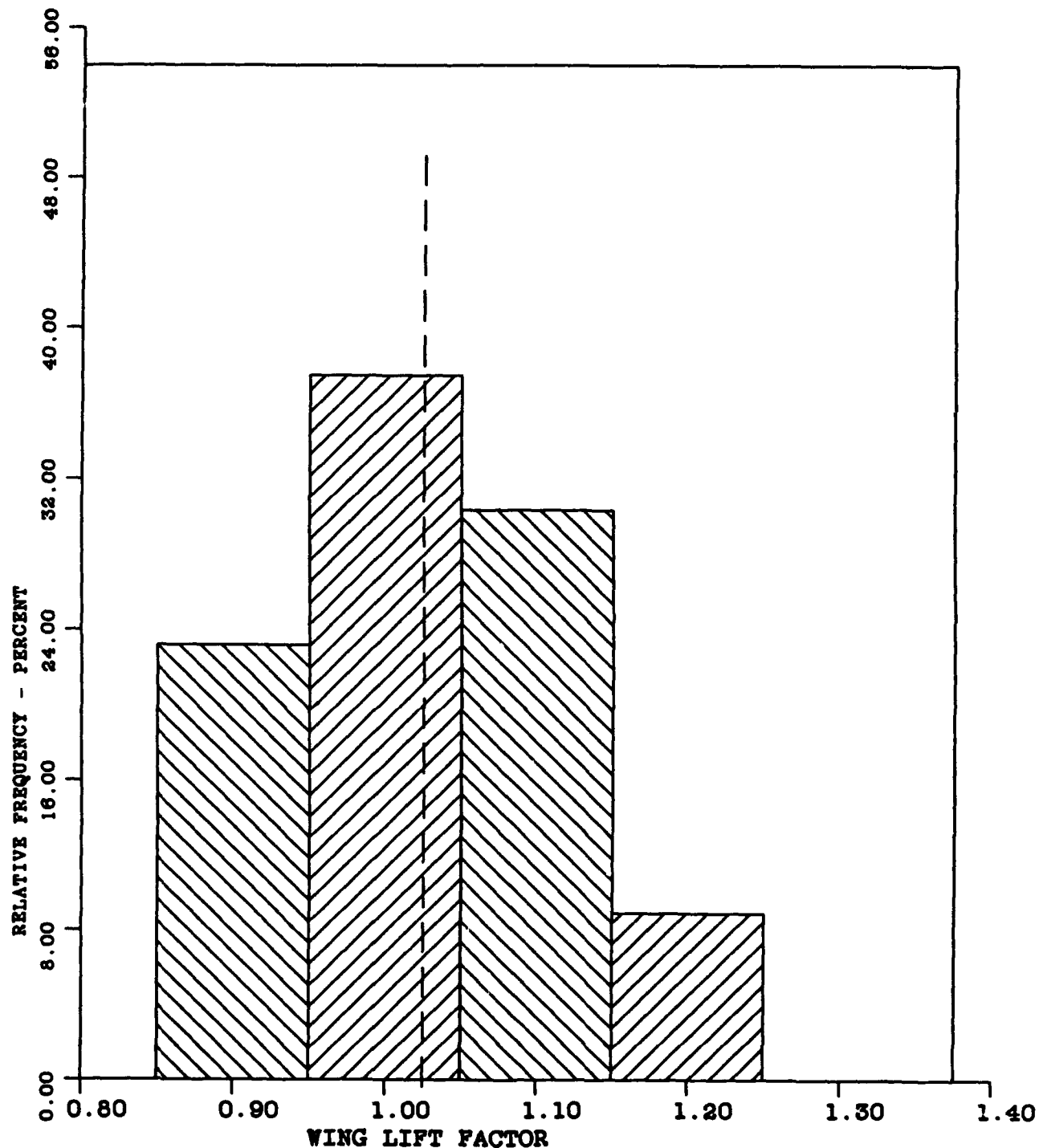


FIGURE J-17 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -1.03

A3-0.19

S-0.09

A4-2.18

CURVE FITTED - NORMAL

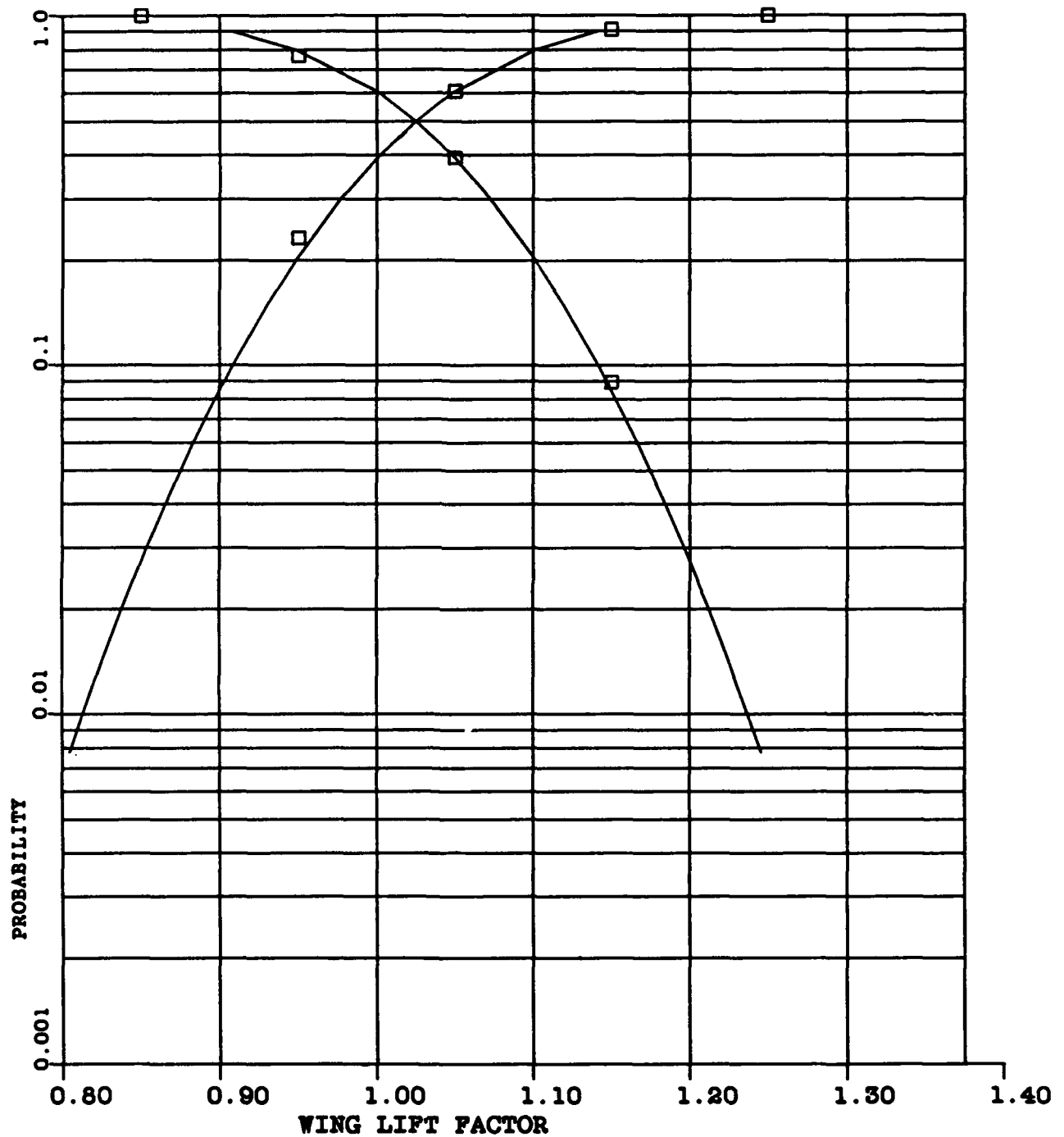


FIGURE J-18 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-5

 $\bar{X}$ -1.08

A3-0.34

S-0.07

A4-1.85

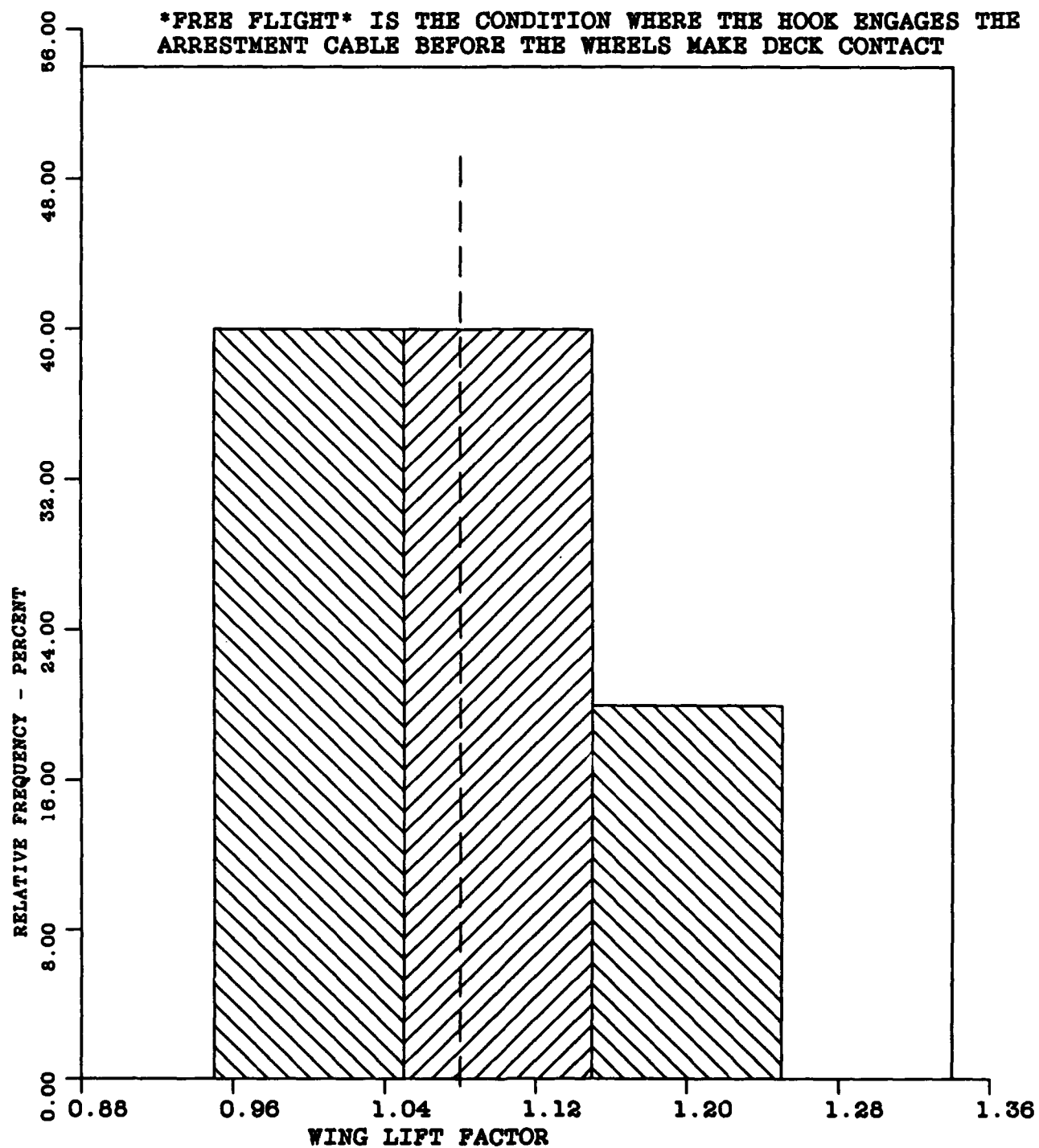


FIGURE J-19 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=5

 $\bar{X}$ -1.08

A3=0.34

S=0.07

A4=1.85

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

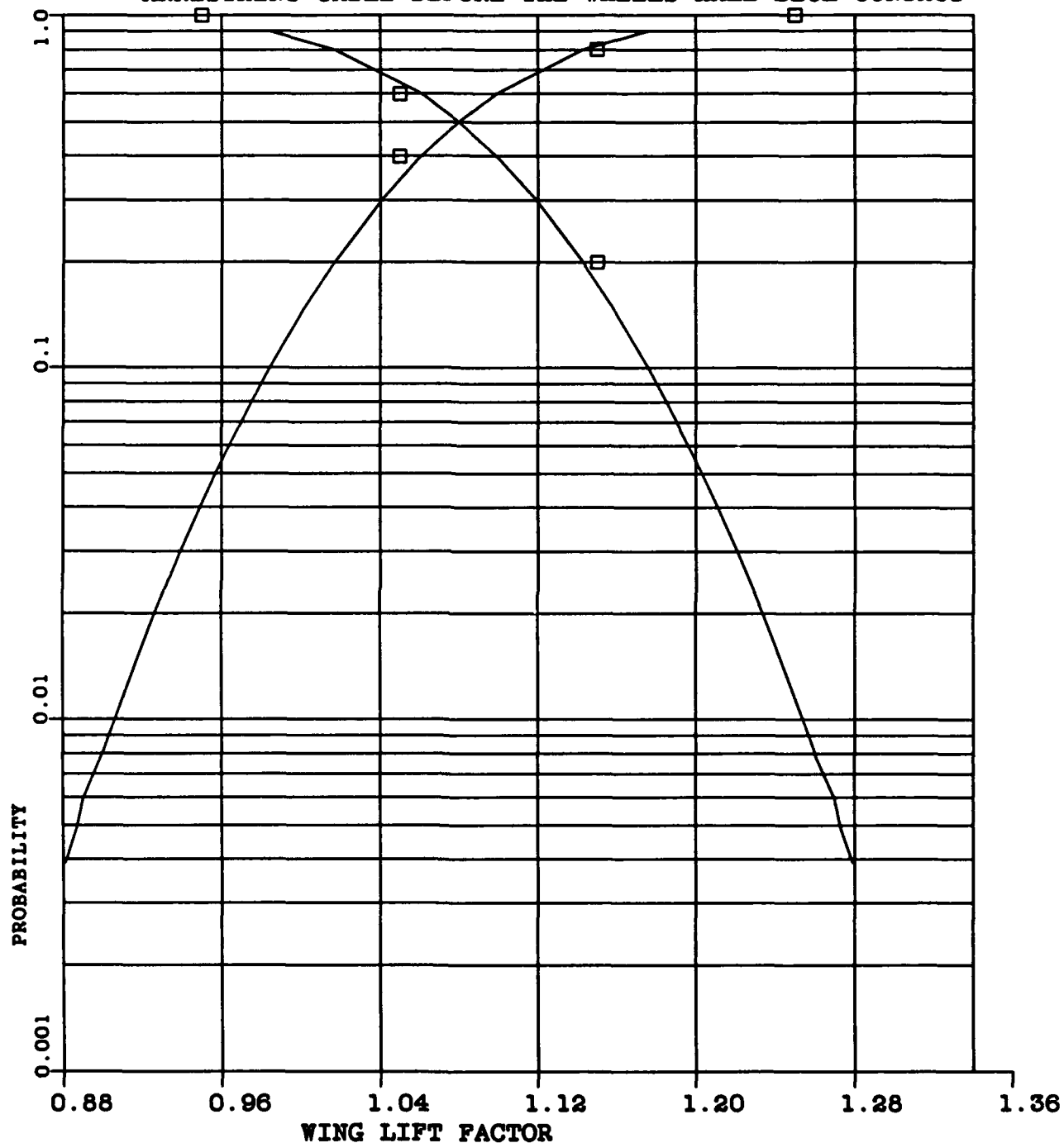


FIGURE J-20 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -12.29 DEGREES (0.214 RADIANS)

S-1.32 DEGREES (0.023 RADIANS)

A3--0.27

A4-3.07

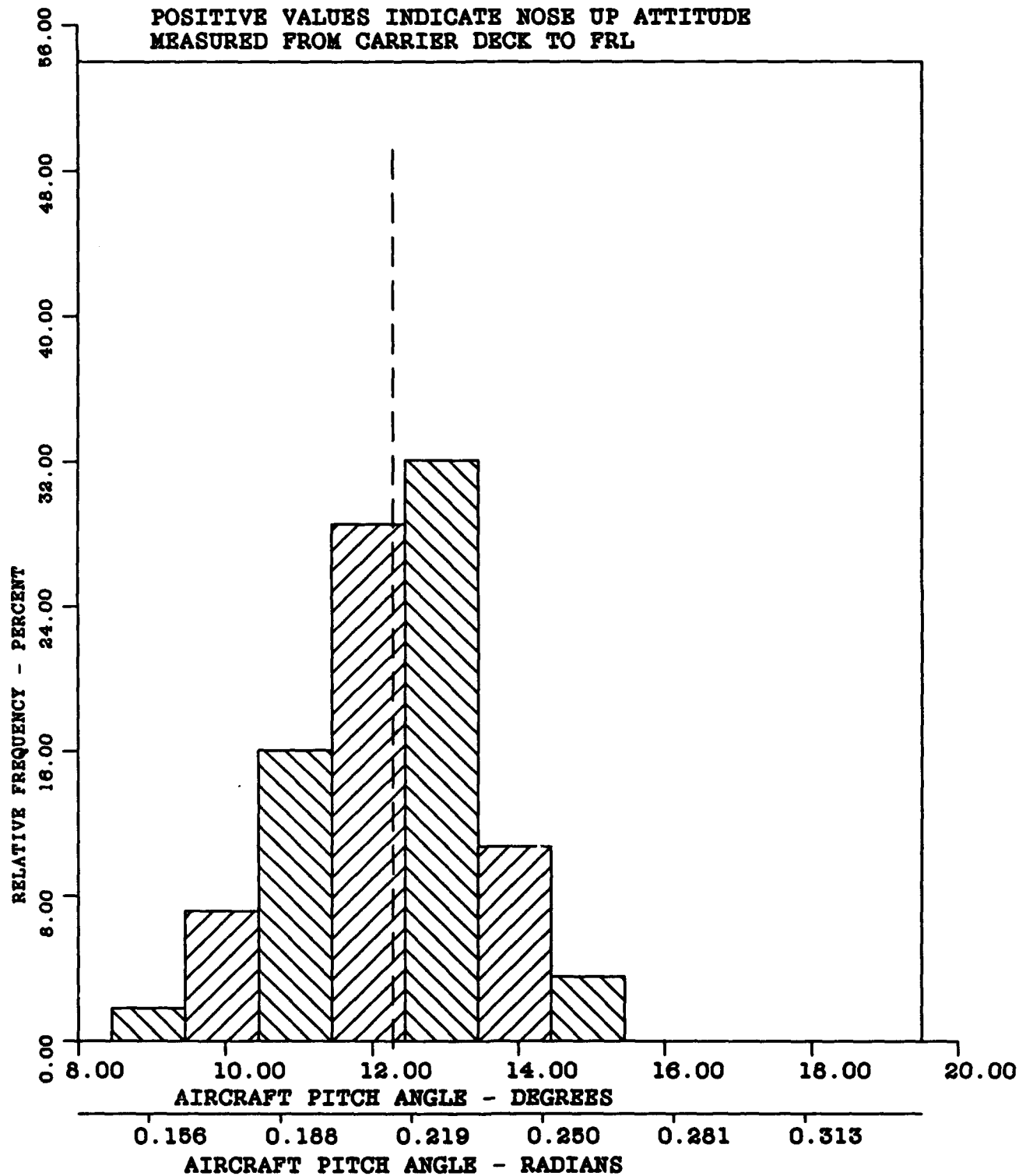


FIGURE J-21 FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=56

 $\bar{X}$ -12.29 DEGREES (0.214 RADIANS)

A3--0.27

S-1.32 DEGREES (0.023 RADIANS)

A4-3.07

CURVE FITTED - NORMAL

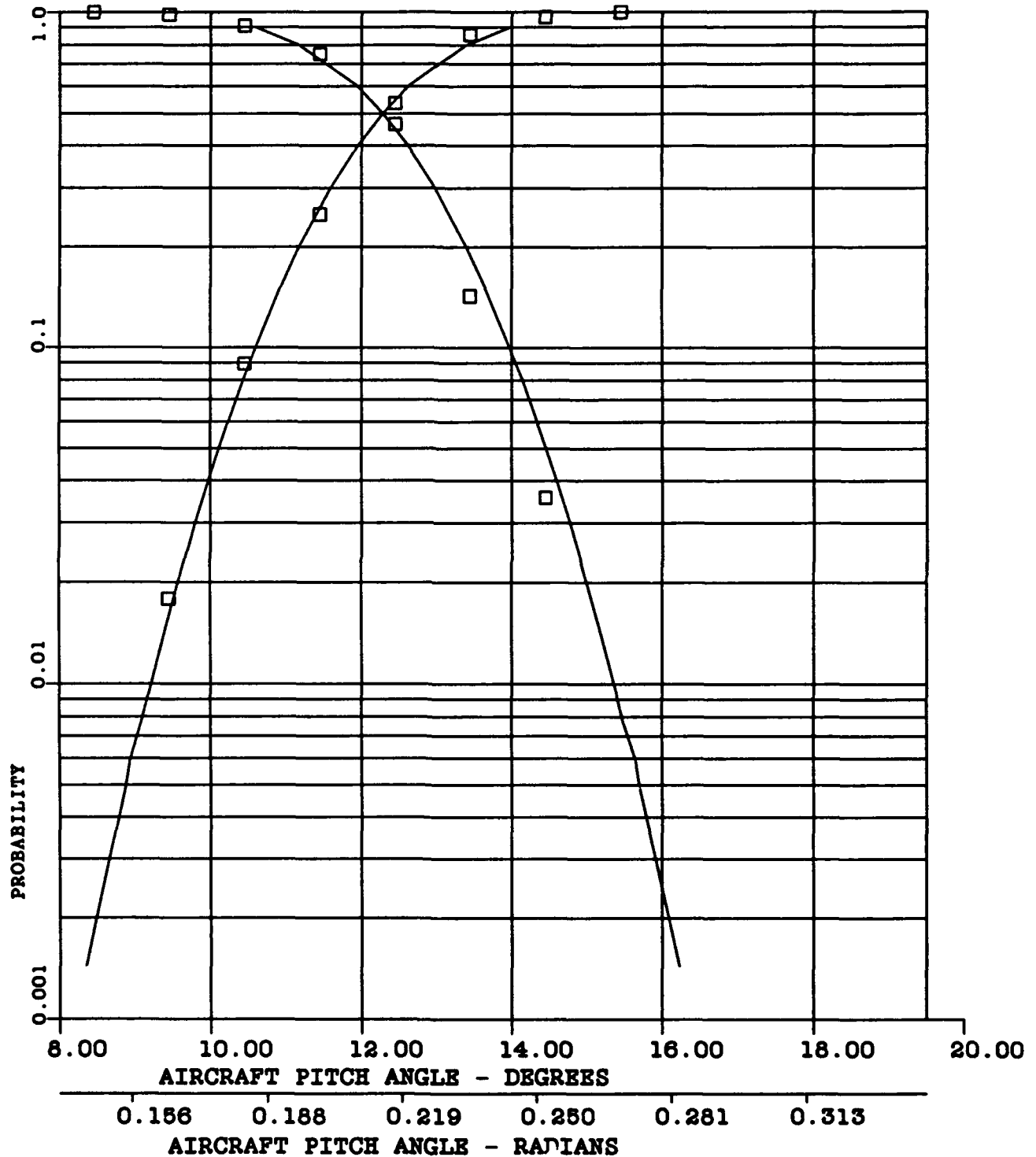
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE J-22 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ =10.82 DEGREES (0.189 RADIANS)

A3=0.07

S=1.41 DEGREES (0.025 RADIANS)

A4=2.46

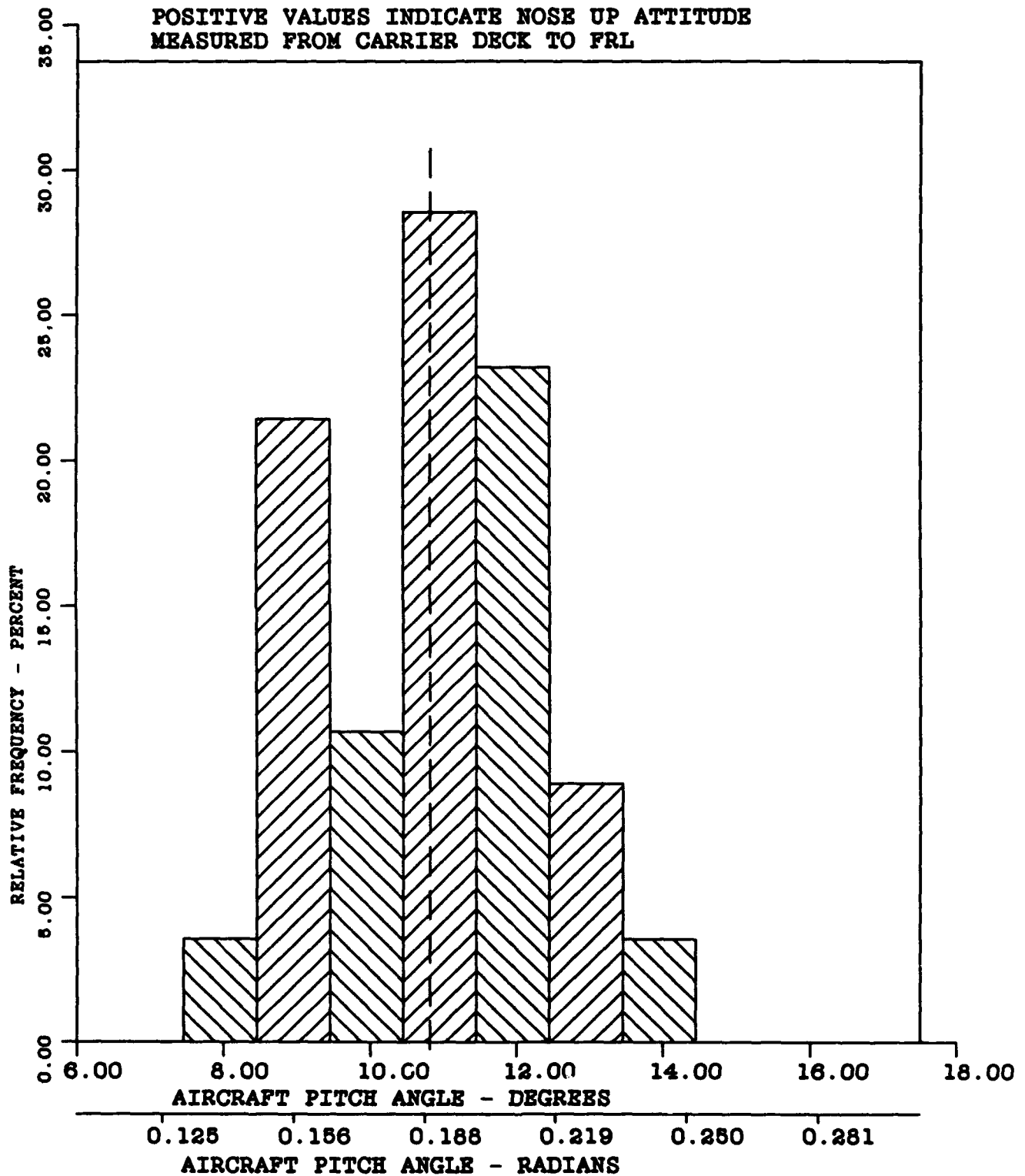


FIGURE J-23 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -10.82 DEGREES (0.189 RADIANS)

A3-0.07

S-1.41 DEGREES (0.025 RADIANS)

A4-2.46

CURVE FITTED - NORMAL

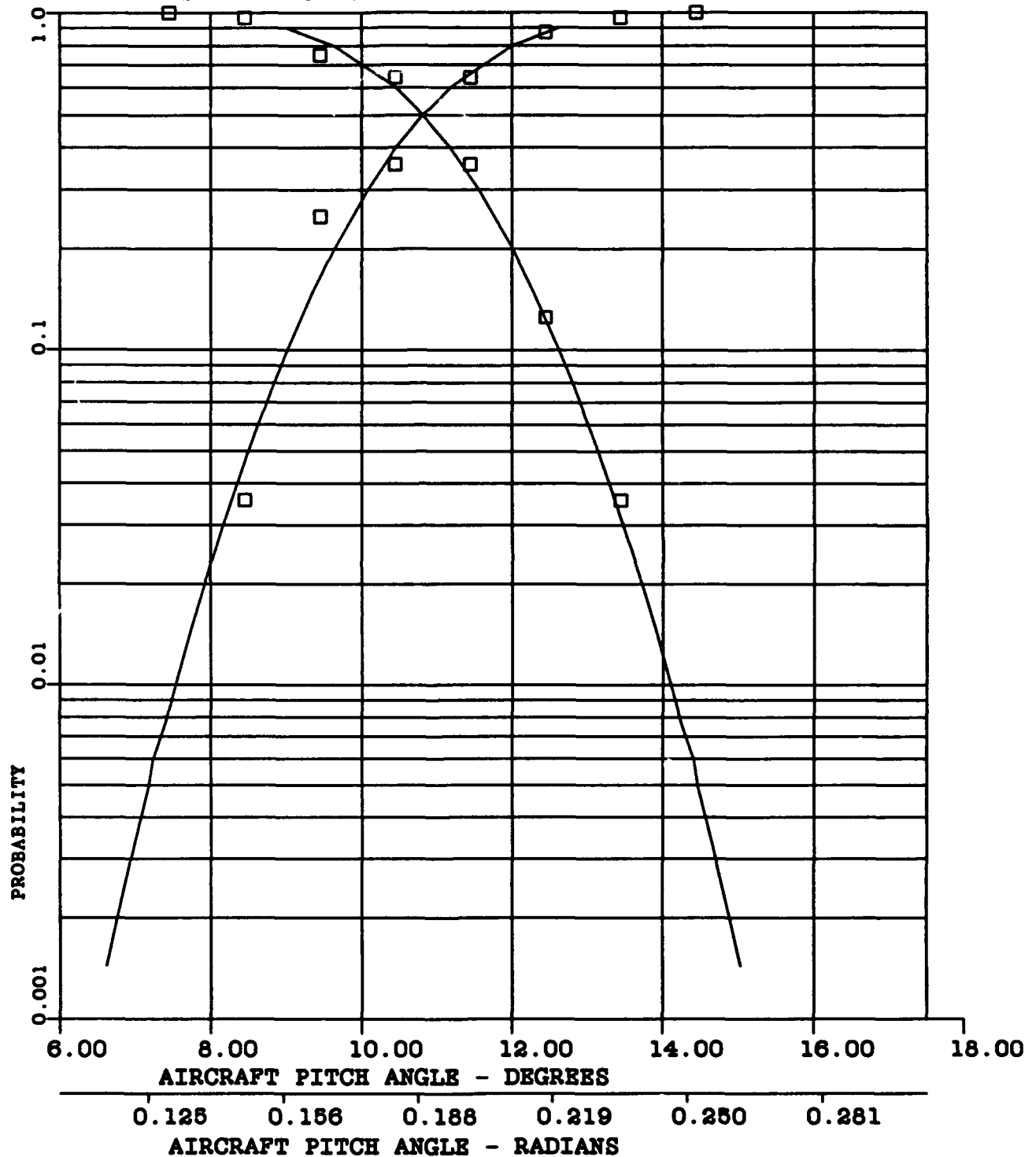
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE J-24 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-5

 $\bar{X}$ -11.66 DEGREES (0.203 RADIANS)

A3--0.41

S-0.40 DEGREES (0.007 RADIANS)

A4-2.20

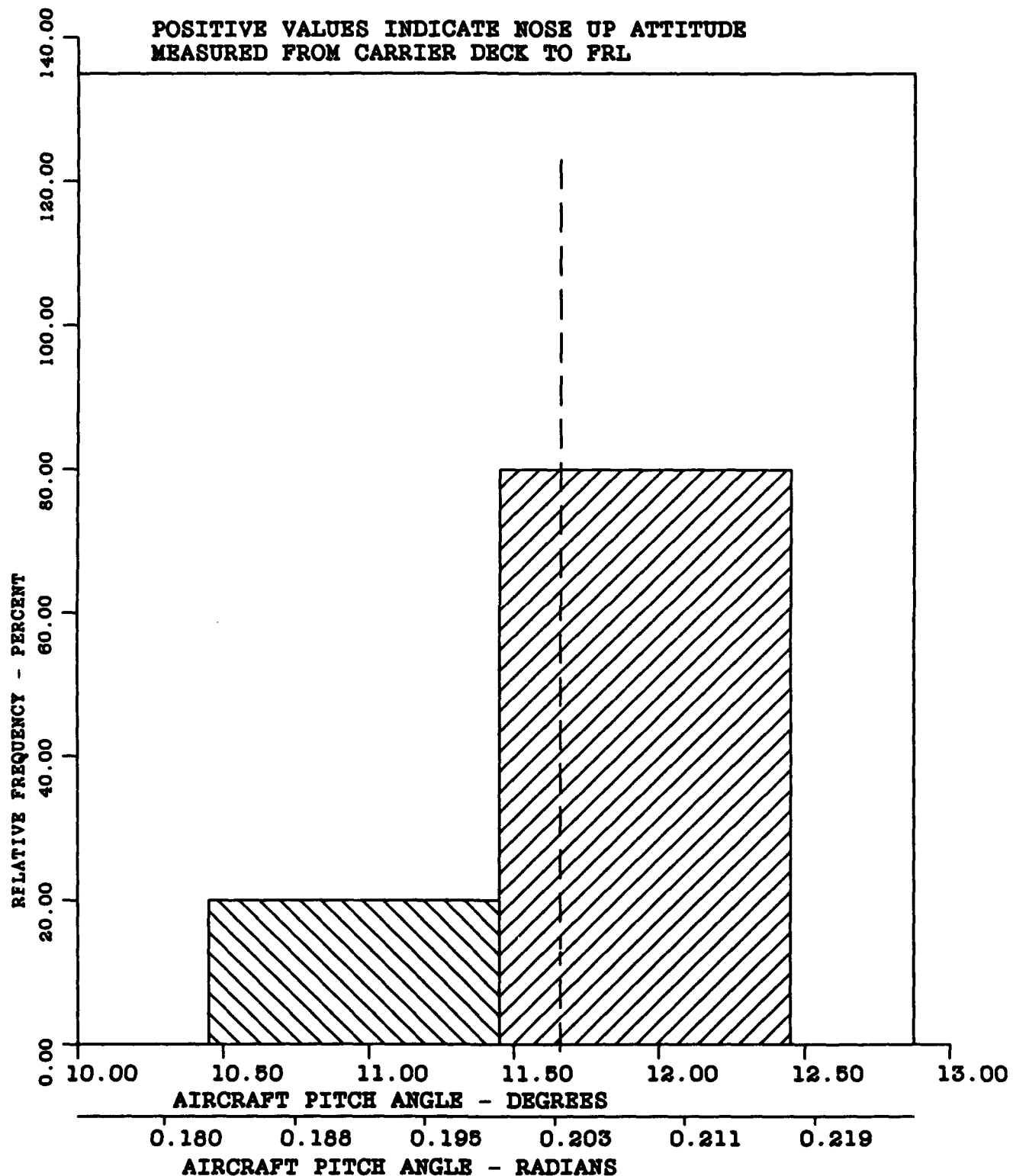


FIGURE J-25 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-5

 $\bar{X}$ -11.66 DEGREES (0.203 RADIANS)

A3--0.41

S-0.40 DEGREES (0.007 RADIANS)

A4-2.20

CURVE FITTED - NORMAL

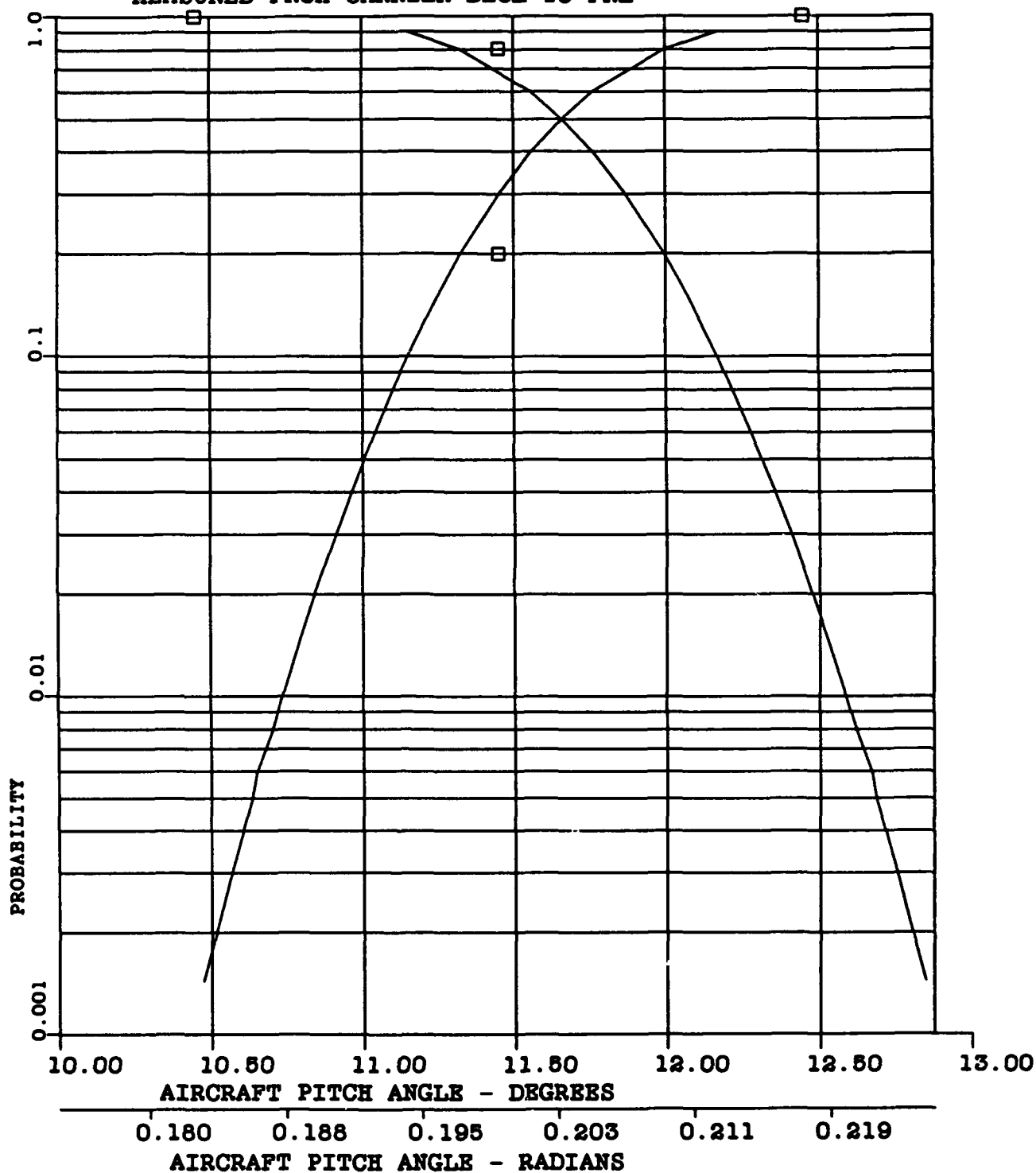
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE J-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -0.70 DEGREES (0.012 RADIANS)

A3-0.19

S-2.91 DEGREES (0.051 RADIANS)

A4-2.40

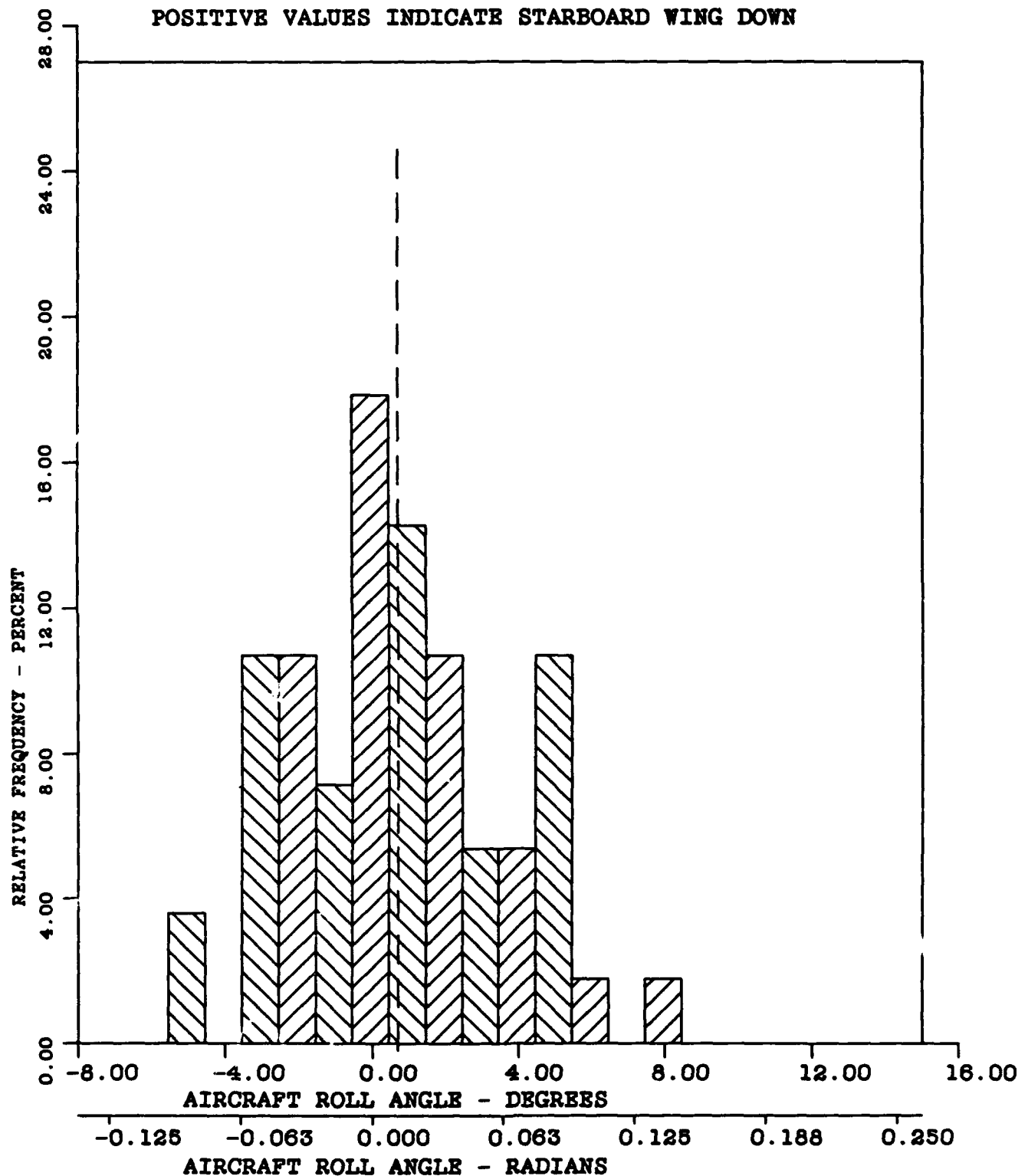


FIGURE J-27 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=56

 $\bar{X}$ =-0.70 DEGREES (0.012 RADIANS)

A3=0.19

S=2.91 DEGREES (0.051 RADIANS)

A4=2.40

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

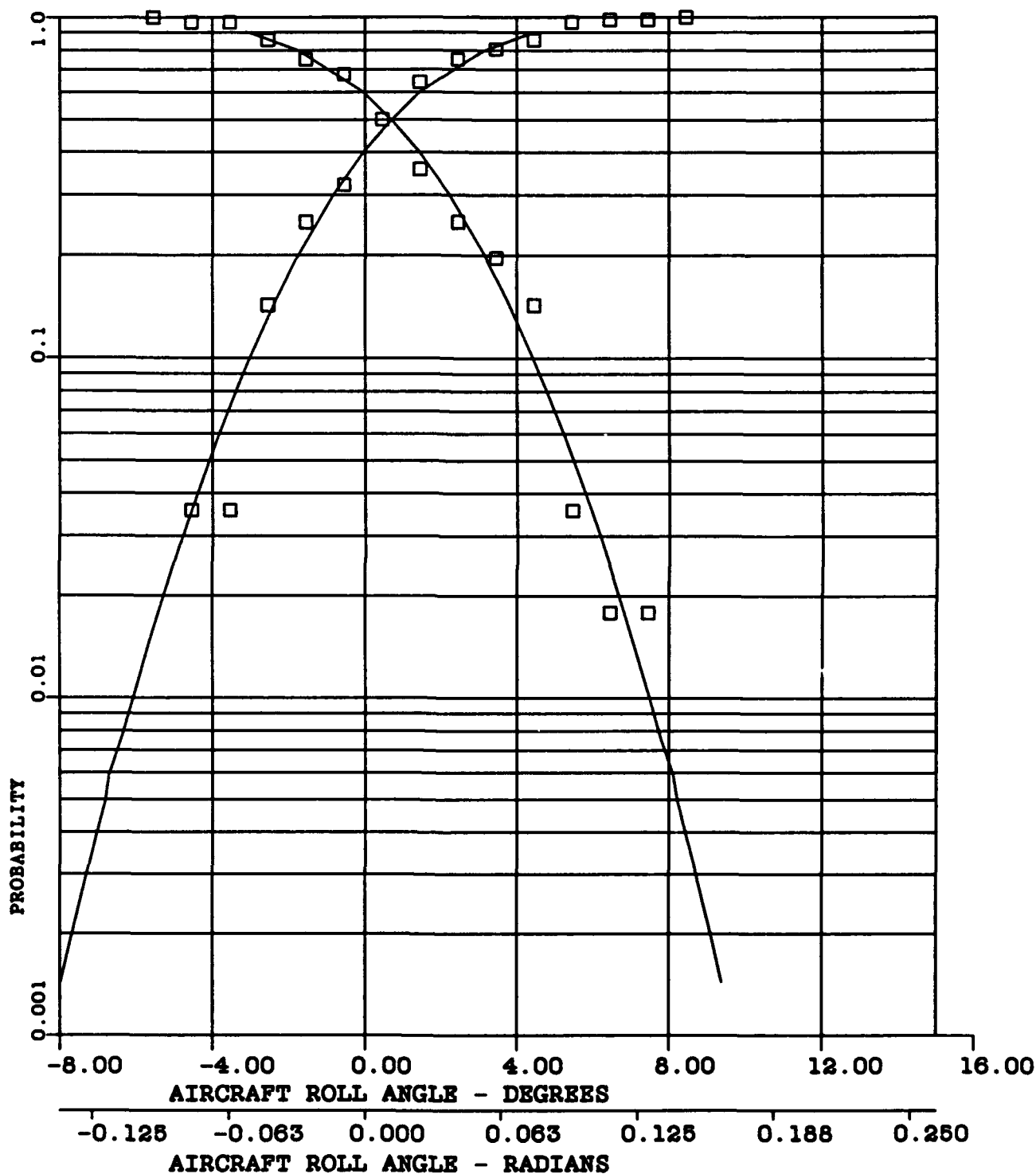


FIGURE J-28 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -0.01 DEGREES (-0.000 RADIANS)

A3-1.03

S-2.62 DEGREES (0.046 RADIANS)

A4-4.84

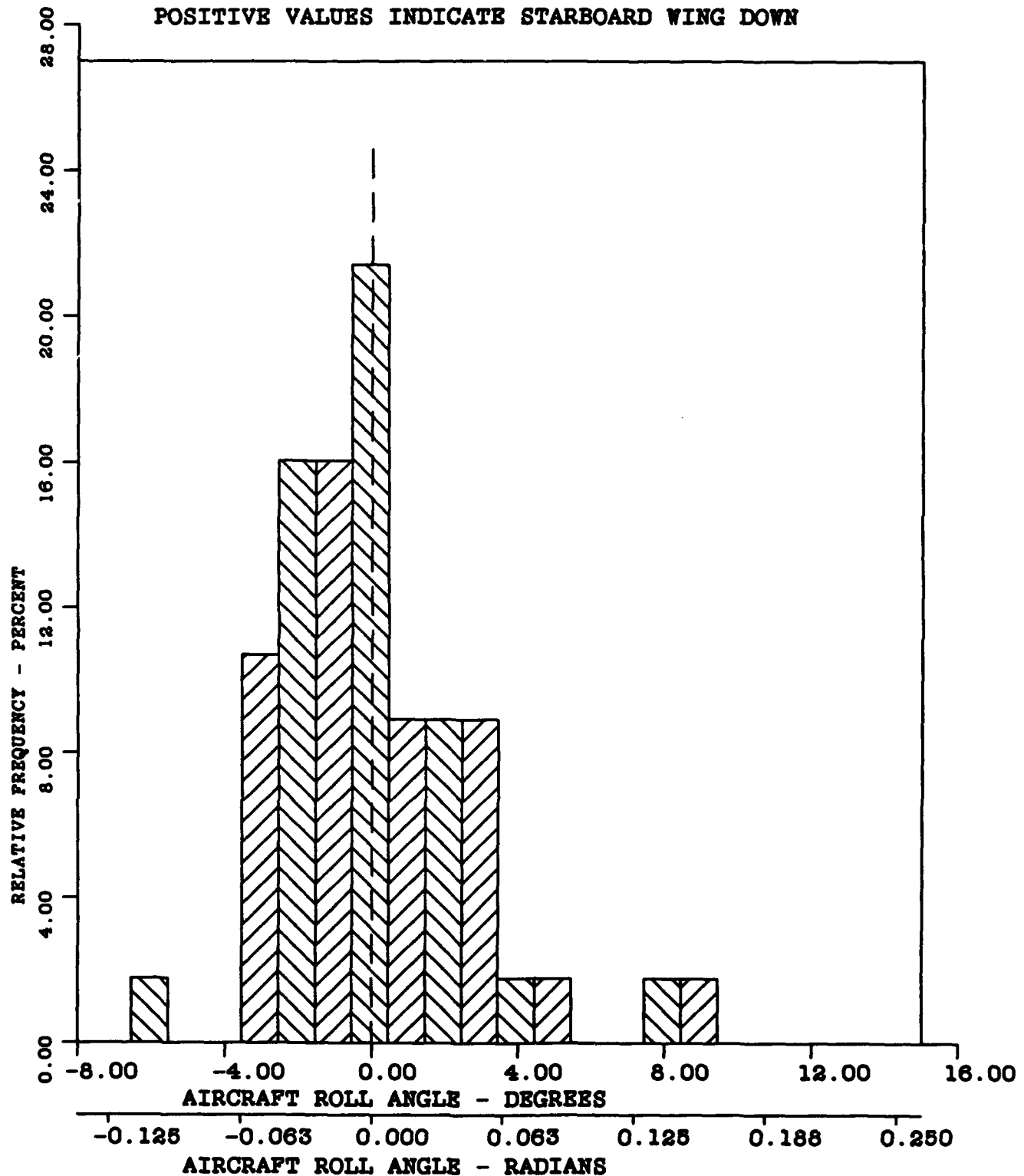


FIGURE J-29 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -0.01 DEGREES (-0.000 RADIANS)

A3-1.03

S-2.62 DEGREES (0.046 RADIANS)

A4-4.84

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

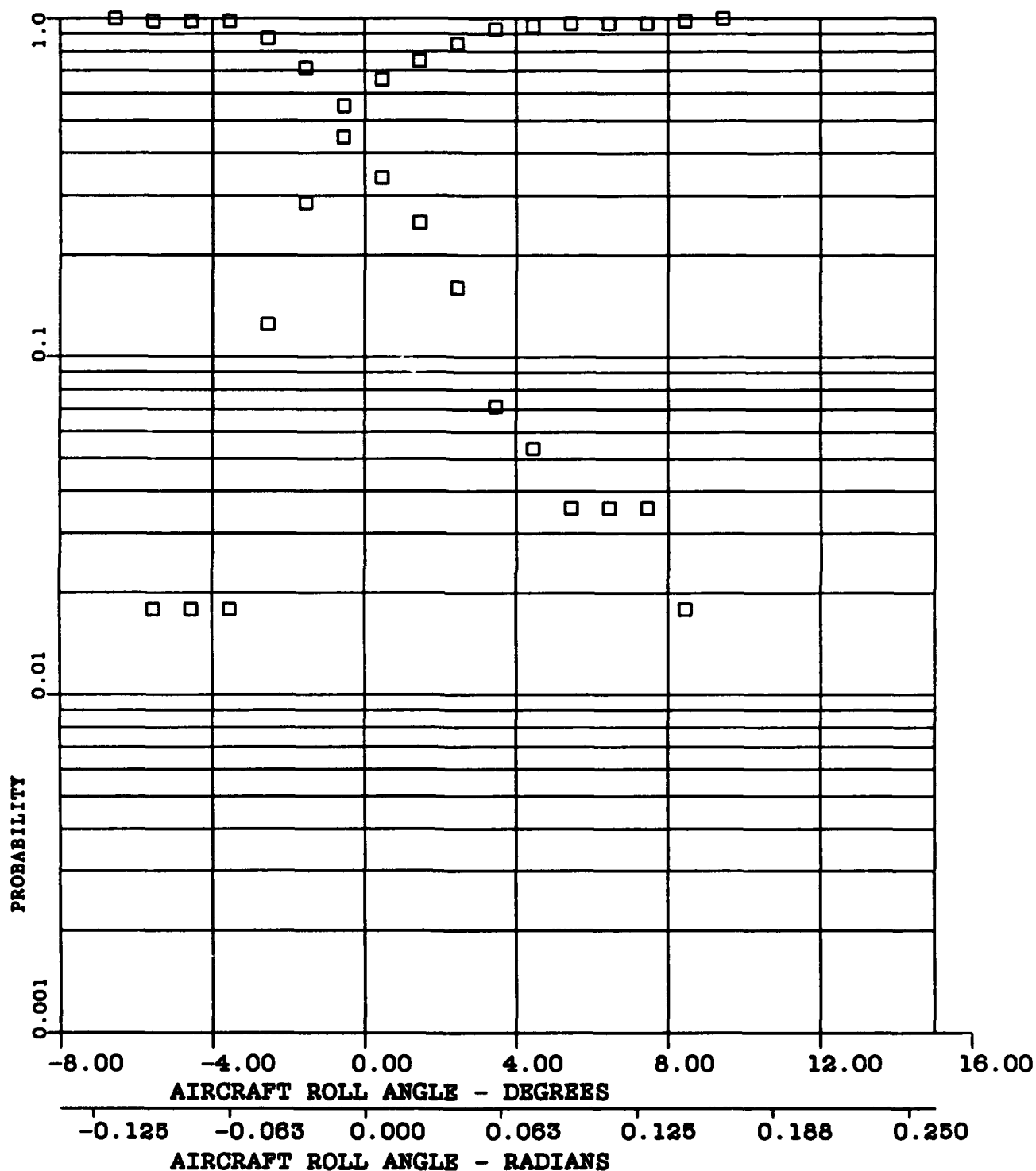


FIGURE J-30 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL RA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-5

 $\bar{X}$ --0.75 DEGREES (-0.013 RADIANS)

A3-0.12

S-0.42 DEGREES (0.007 RADIANS)

A4-1.78

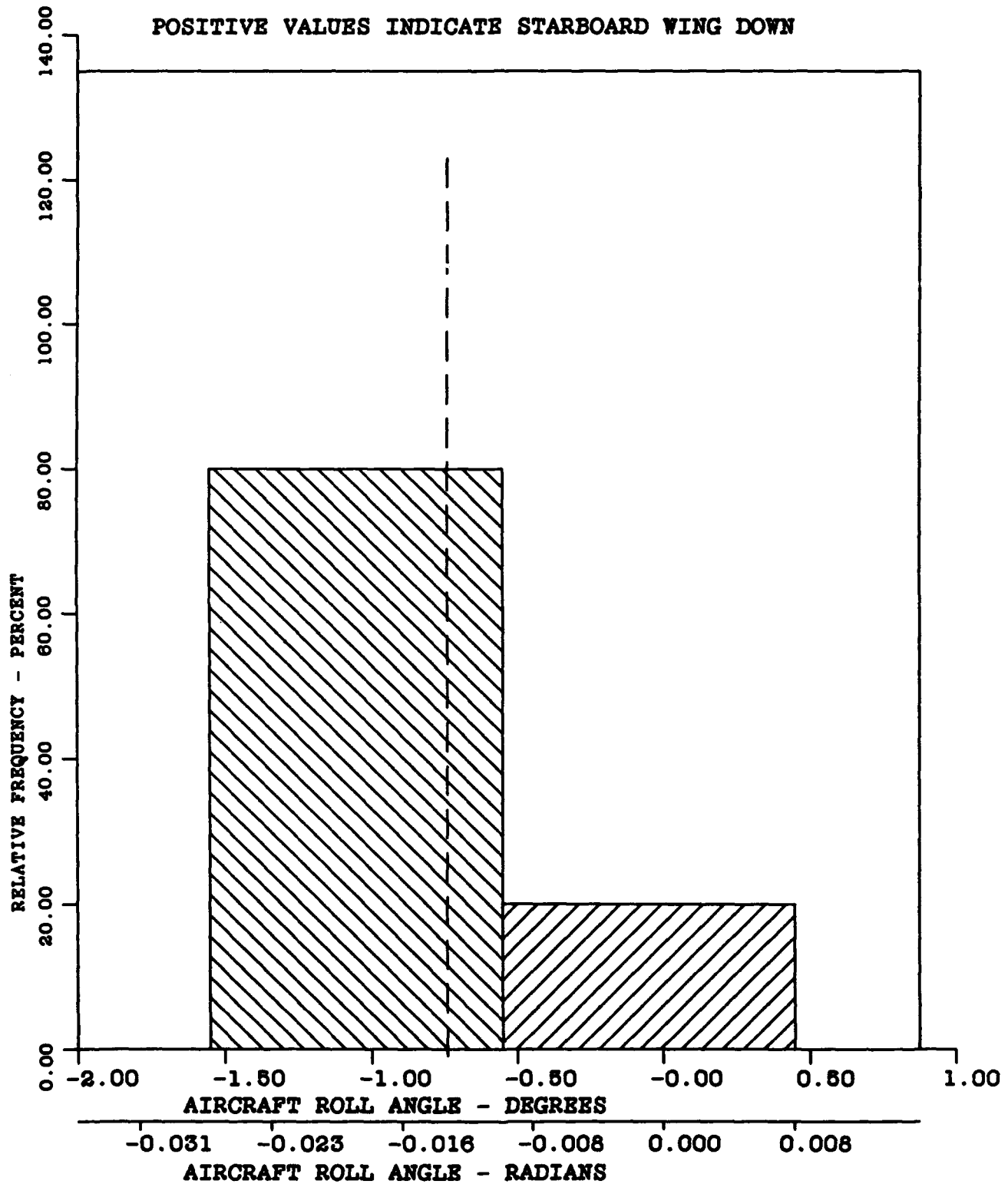


FIGURE J-31 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-5

 $\bar{X}$ -0.75 DEGREES (-0.013 RADIANS)

A3-0.12

S-0.42 DEGREES (0.007 RADIANS)

A4-1.78

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

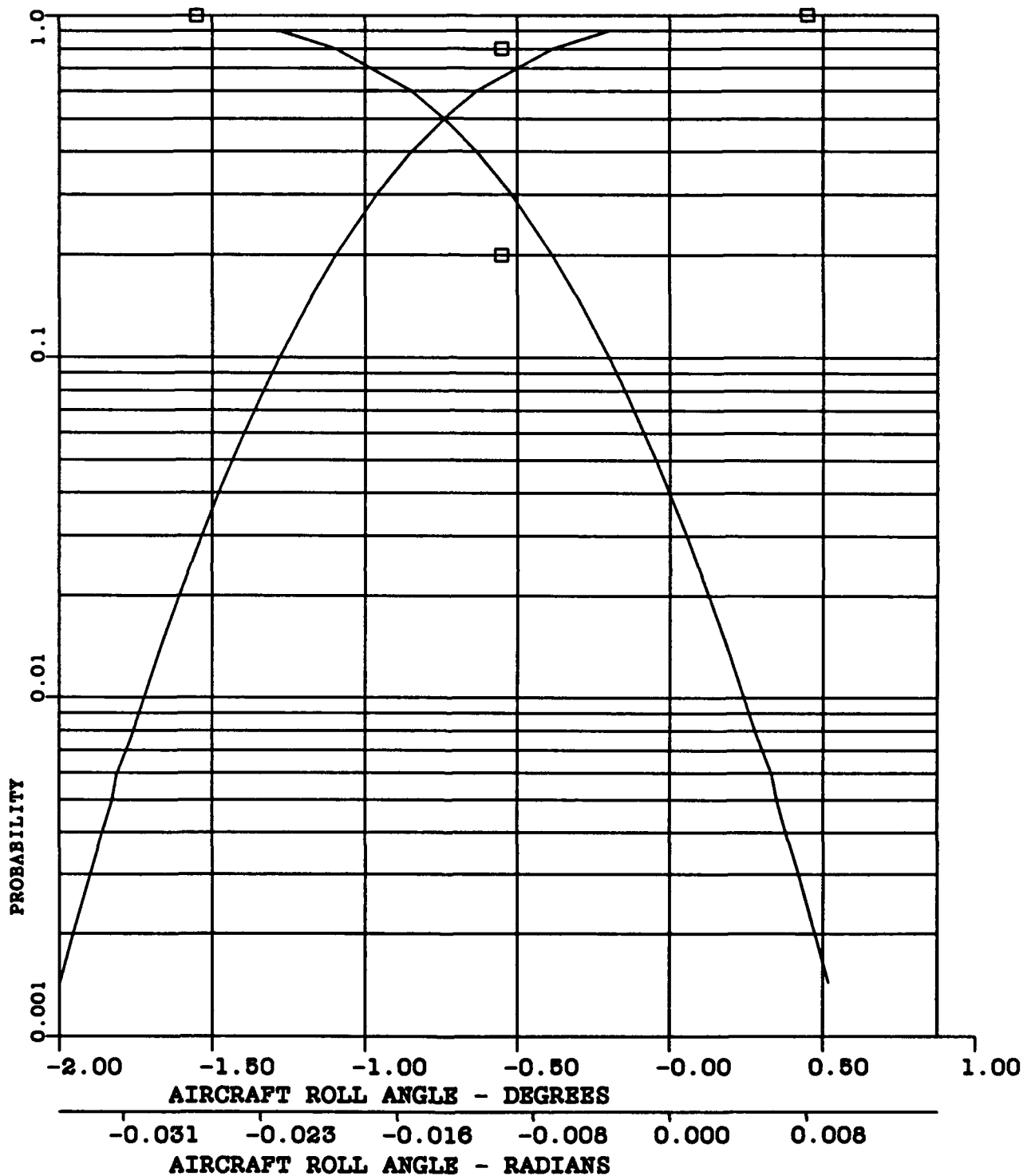


FIGURE J-32 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -245.98 FEET (74.98 METRES)

A3--0.81

S-33.75 FEET (10.28 METRES)

A4-3.93

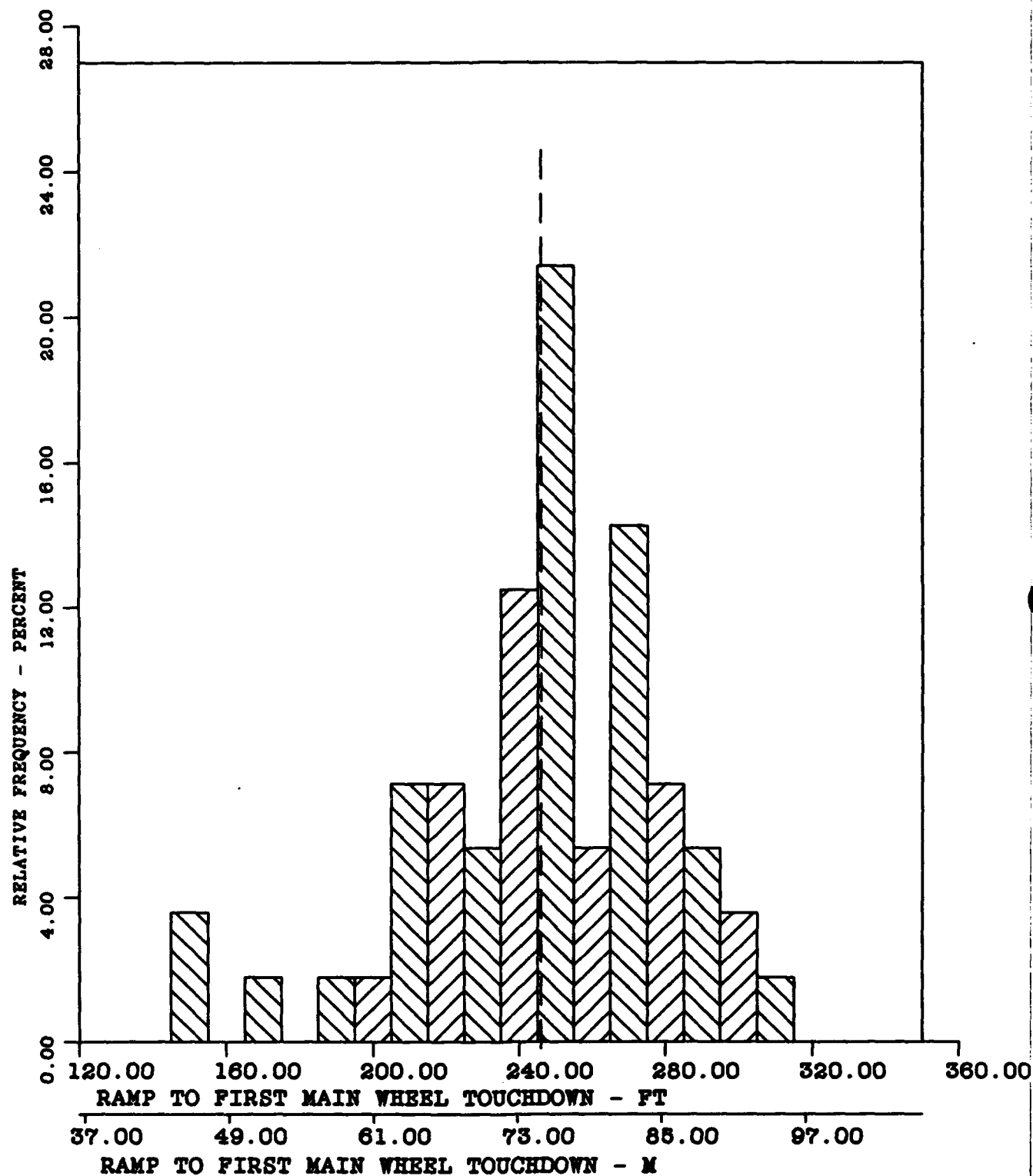


FIGURE J-33 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -245.98 FEET (74.98 METRES)

A3--0.81

S-33.75 FEET (10.28 METRES)

A4-3.93

CURVE FITTED - PEARSON TYPE III

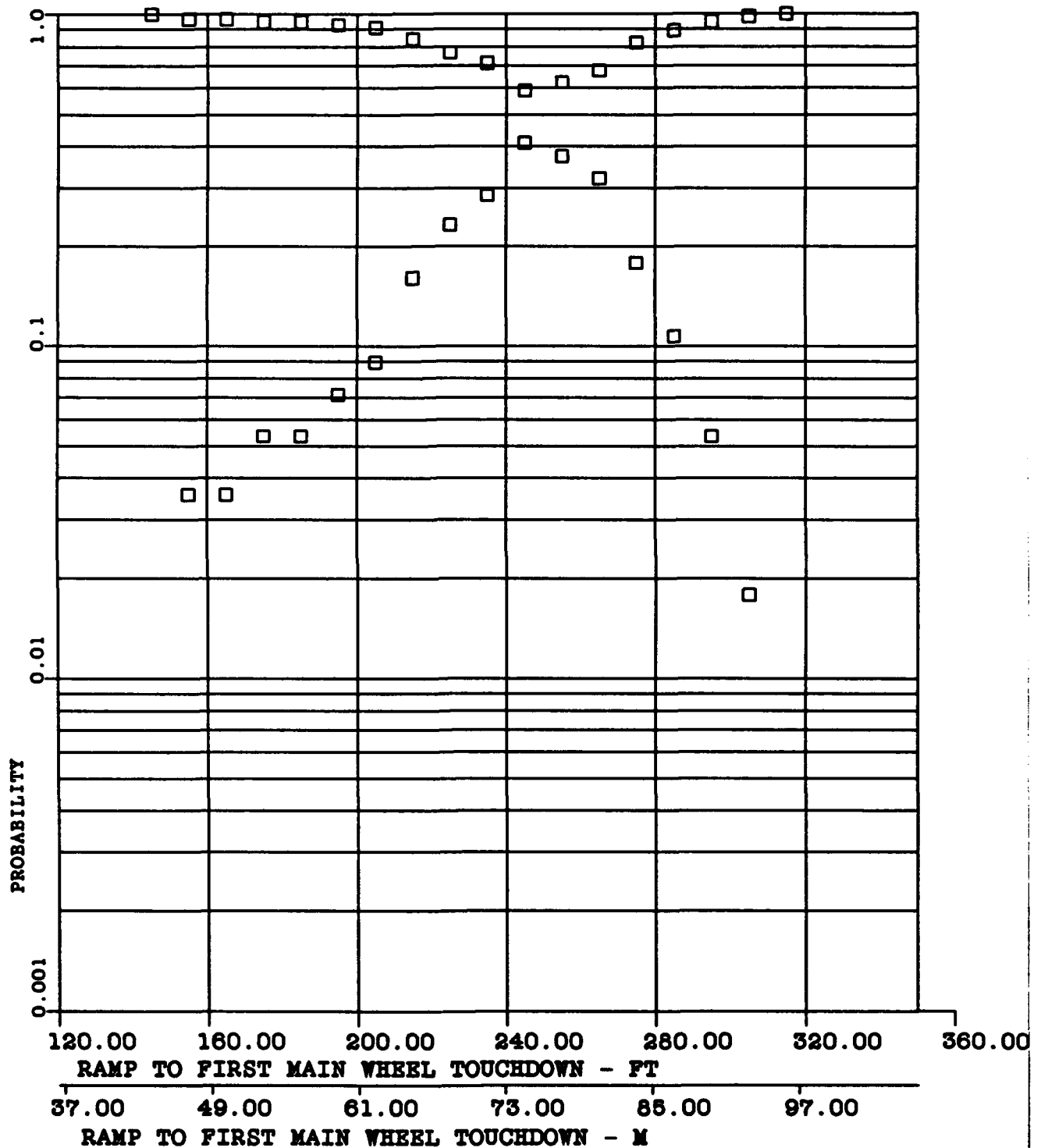


FIGURE J-34 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ --9.67 FEET (-2.92 METRES)

A3-0.43

S-4.60 FEET (1.40 METRES)

A4-3.57

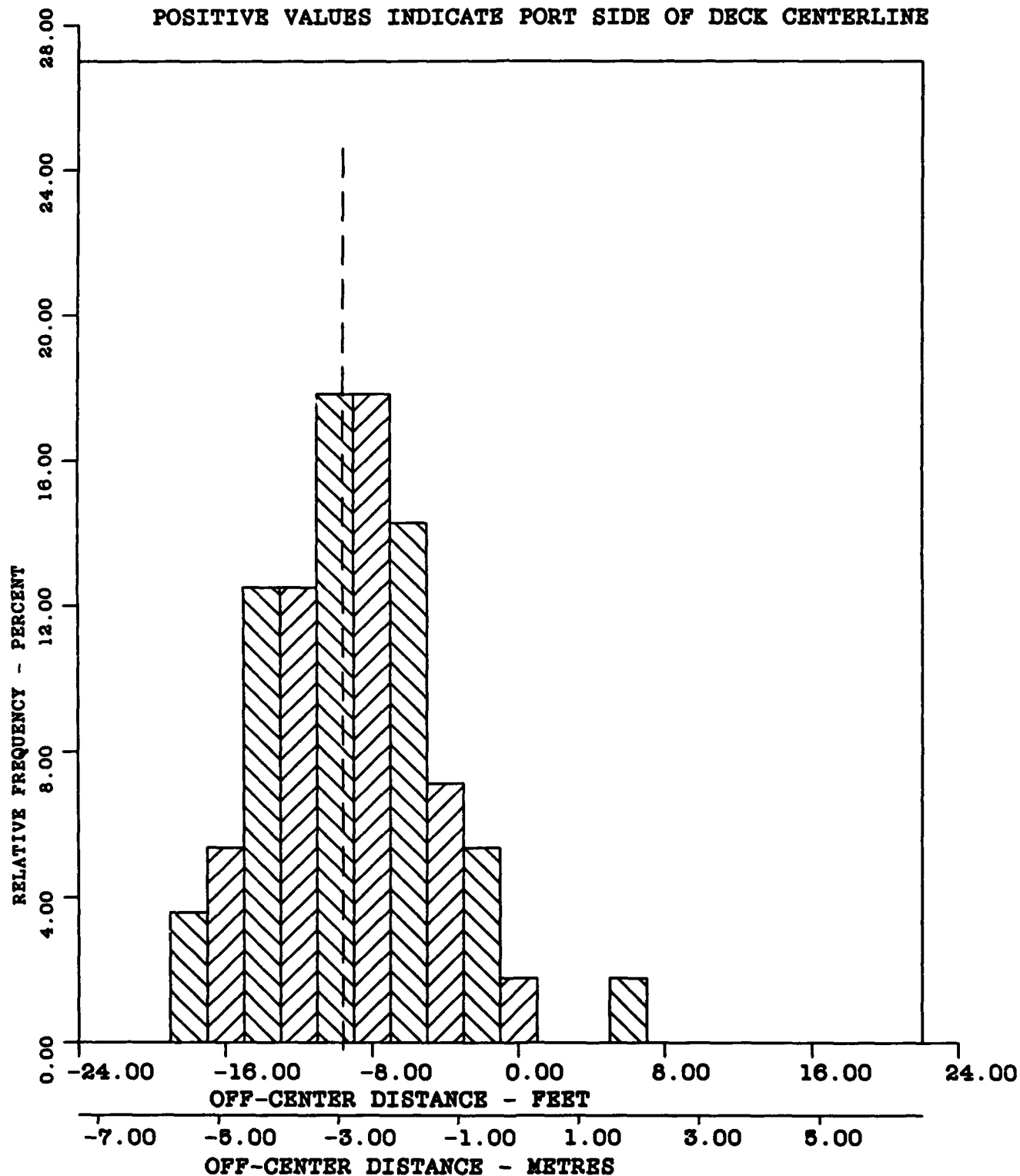


FIGURE J-35 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=56

 $\bar{X}$ --9.57 FEET (-2.92 METRES)

A3-0.43

S=4.60 FEET (1.40 METRES)

A4-3.57

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

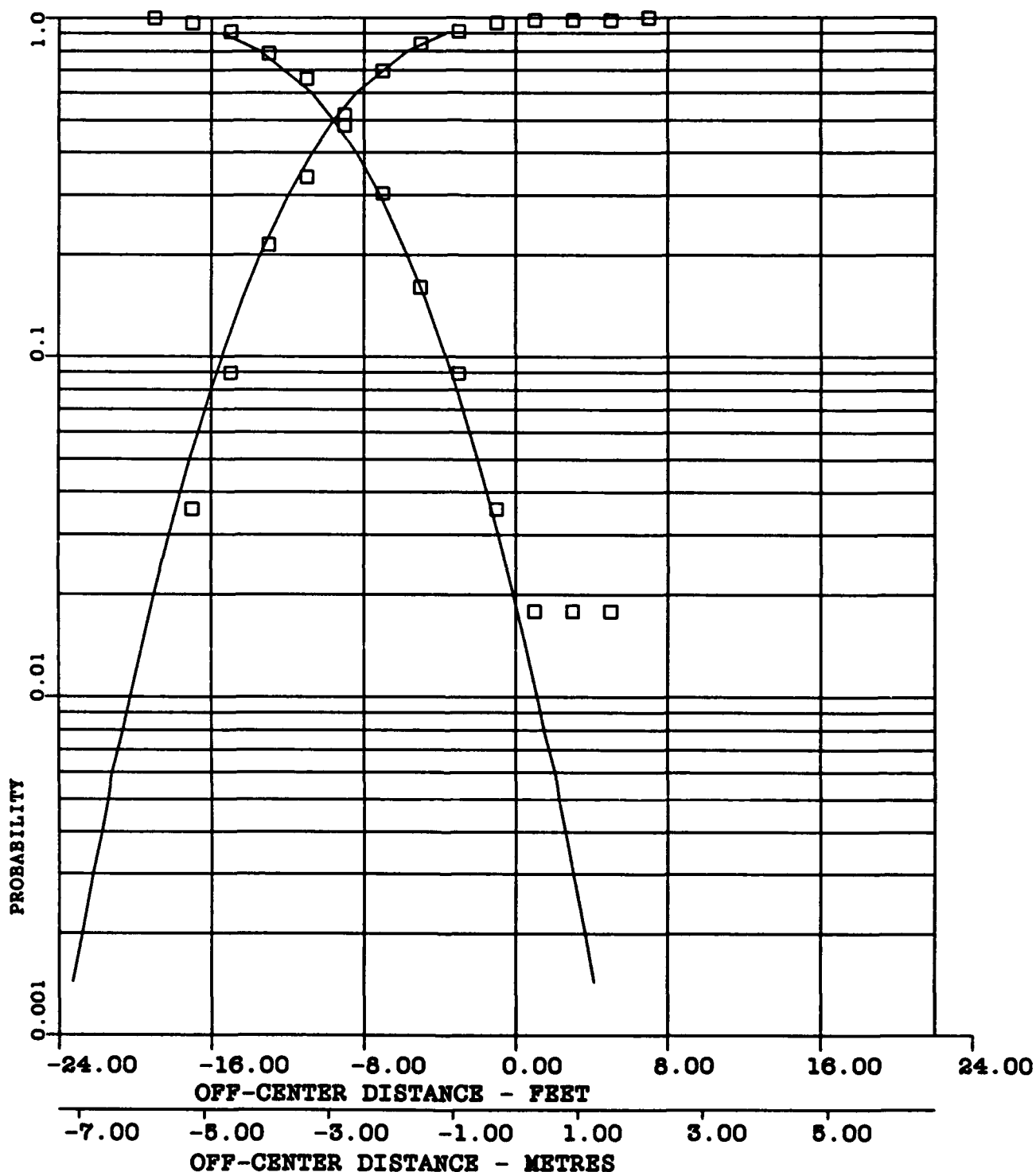


FIGURE J-36 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-49

 $\bar{X}$ -3.12

S-0.69

A3--0.16

A4-2.10

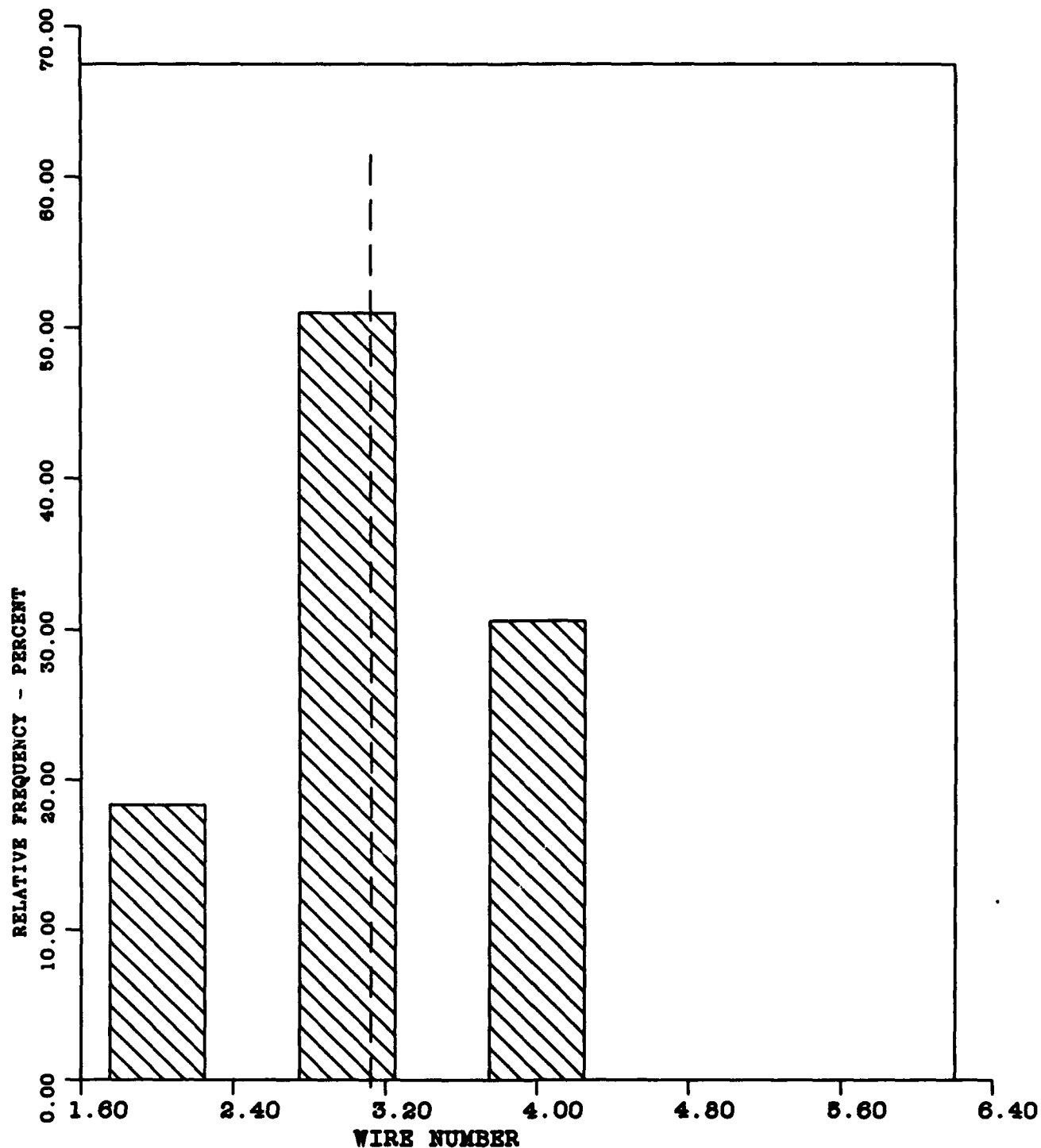


FIGURE J-37 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

PERISCOPE LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -2.97 DEGREES (0.052 RADIANS)

A3--0.47

S-0.57 DEGREES (0.010 RADIANS)

A4-3.04

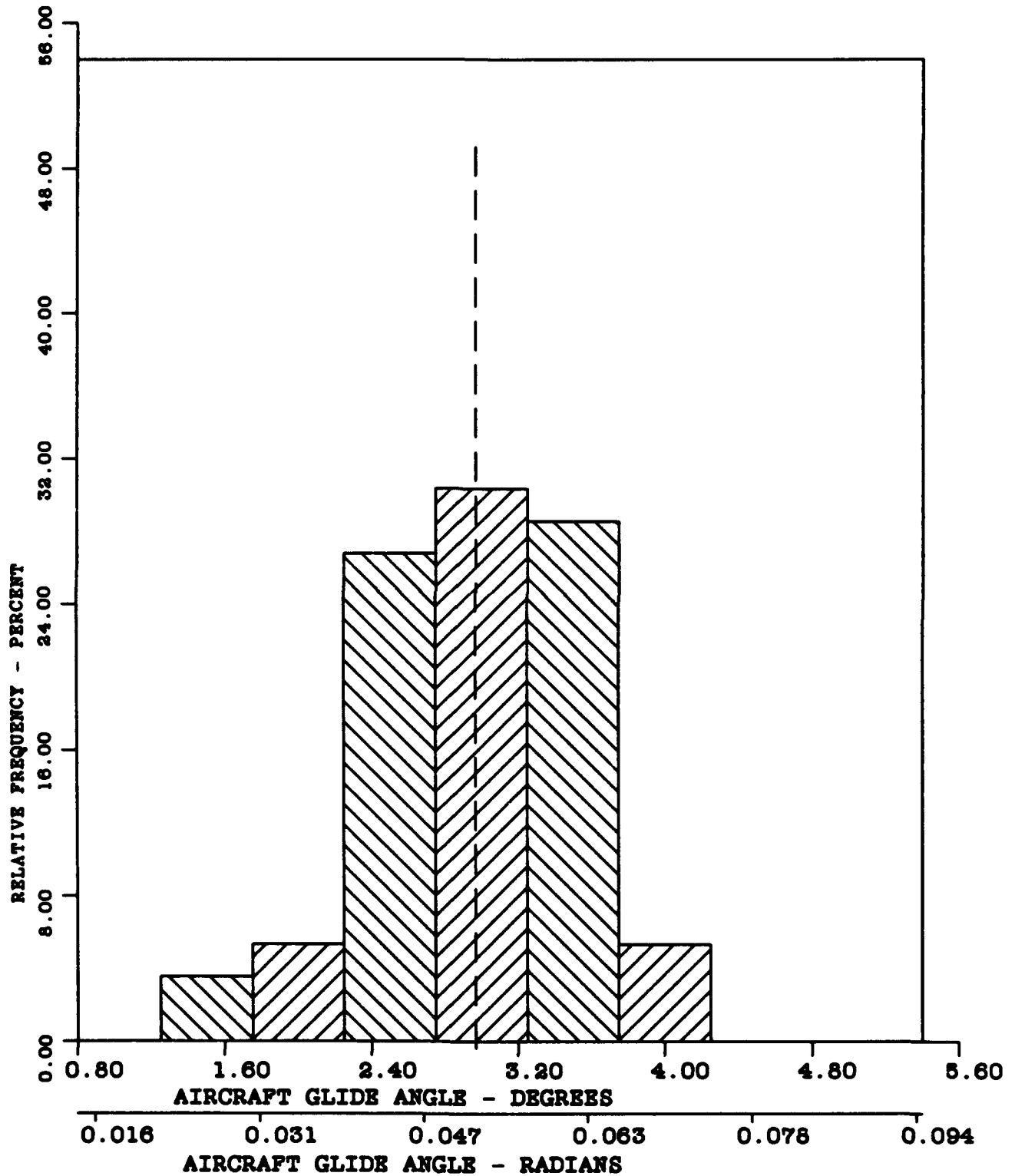


FIGURE J-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -3.06 DEGREES (0.053 RADIANS)

A3-0.86

S-0.52 DEGREES (0.009 RADIANS)

A4-5.44

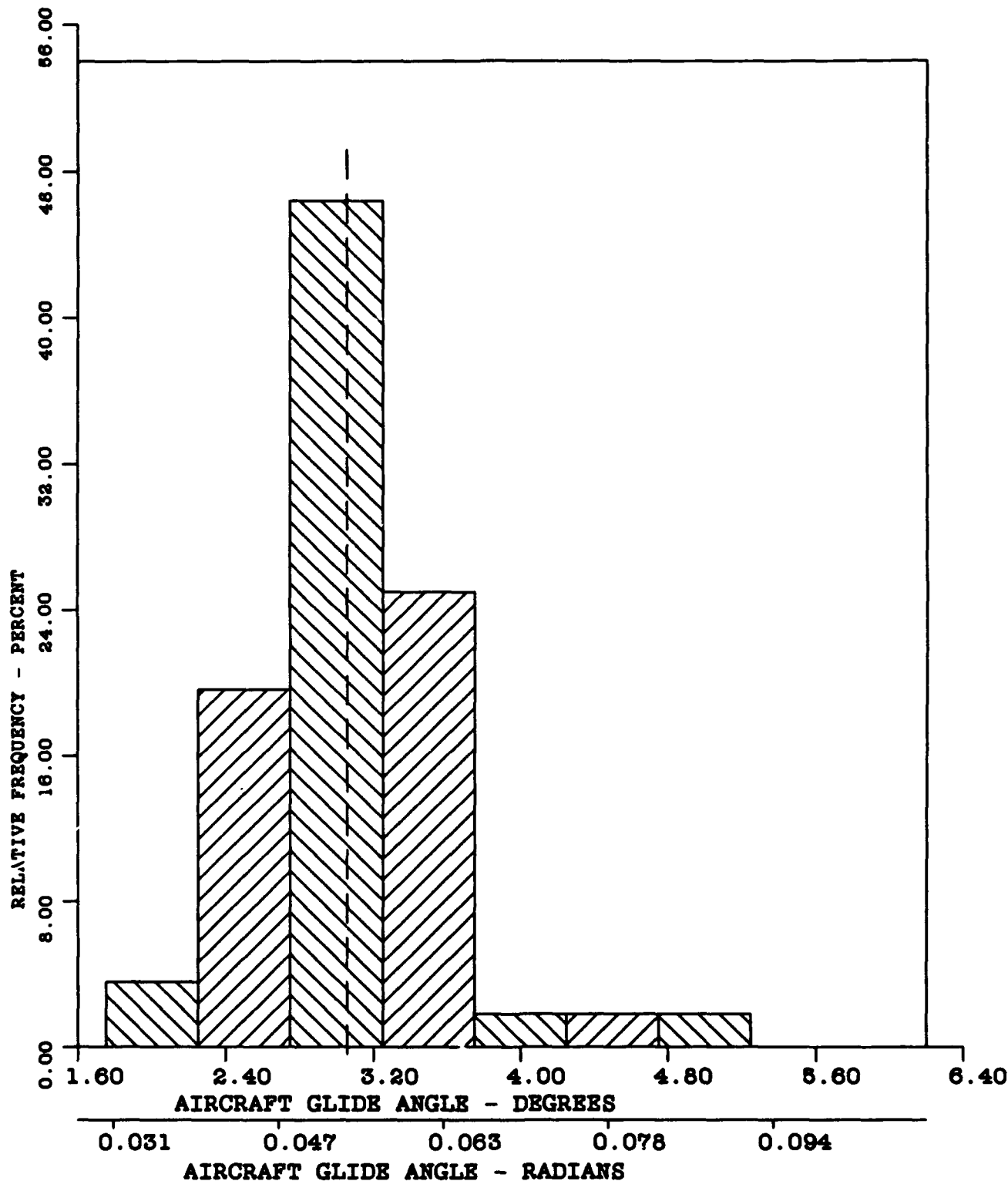


FIGURE J-39 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -9.82 FEET (3.00 METRES)

A3-0.60

S-2.41 FEET (0.73 METRES)

A4-3.20

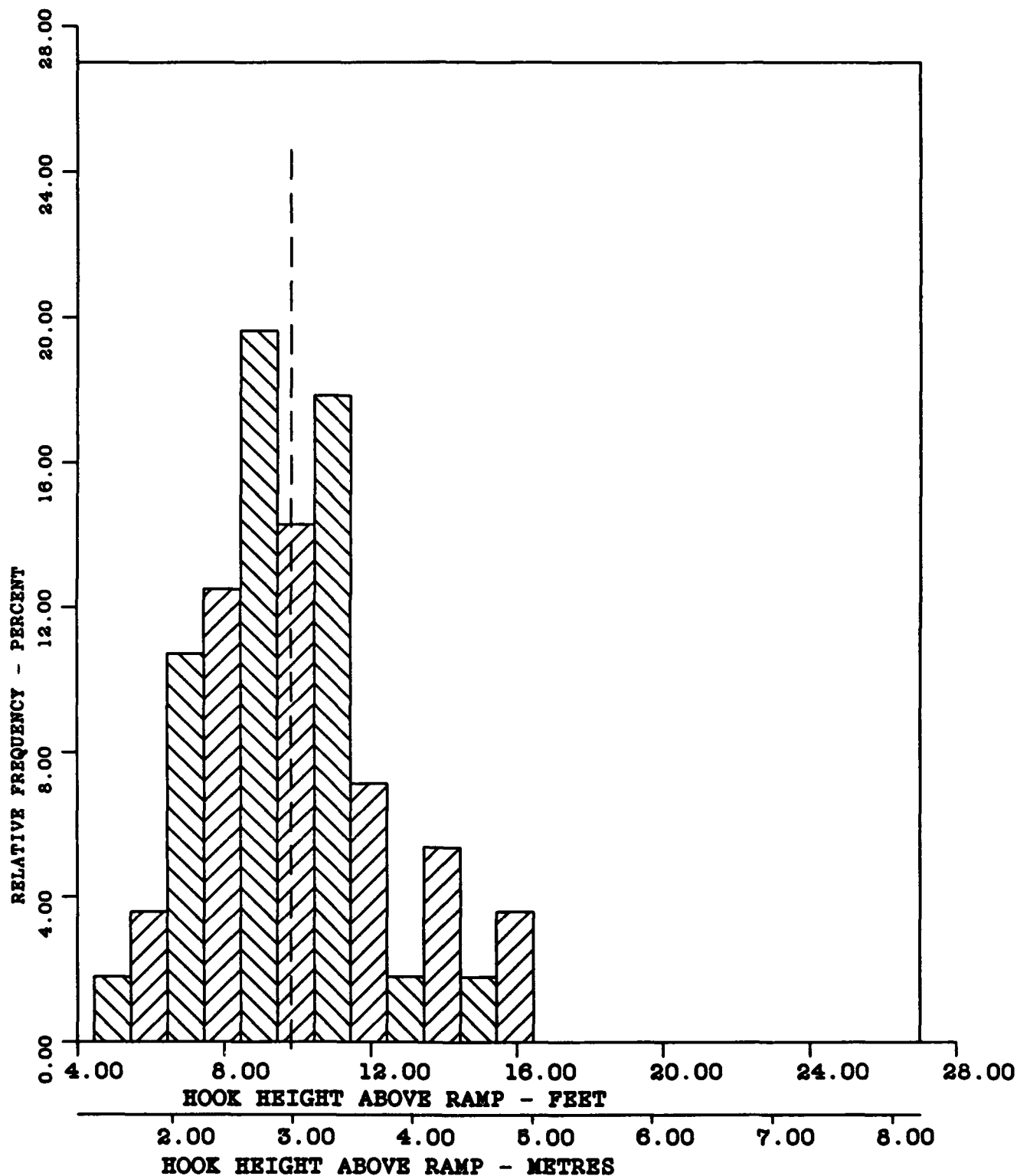


FIGURE J-40 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -9.82 FEET (3.00 METRES)

A3-0.60

S-2.41 FEET (0.73 METRES)

A4-3.20

CURVE FITTED - NORMAL

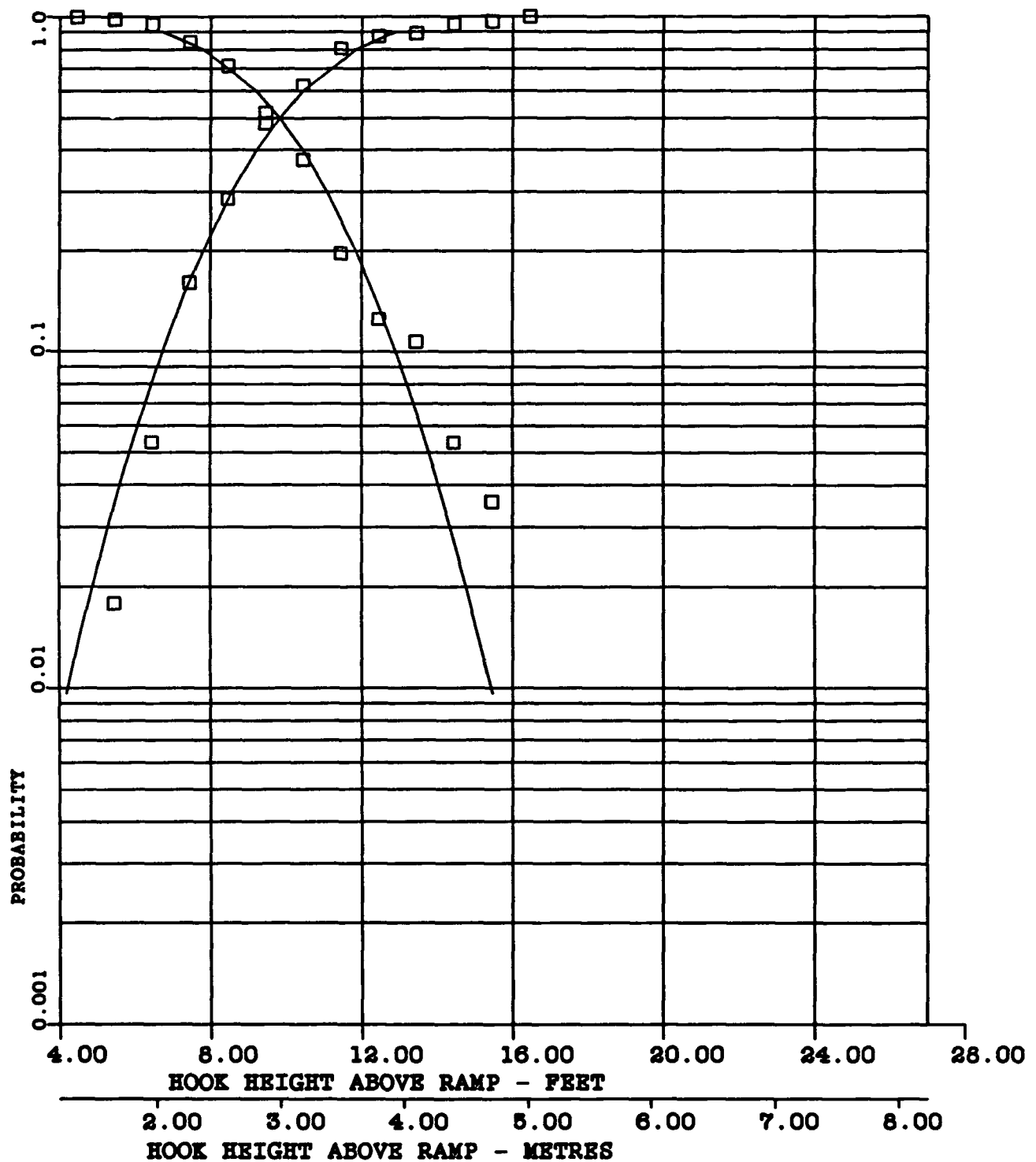


FIGURE J-41 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -107.15 KNOTS (55.12 METRES/SEC)

A3-0.53

S-5.32 KNOTS (2.73 METRES/SEC)

A4-3.23

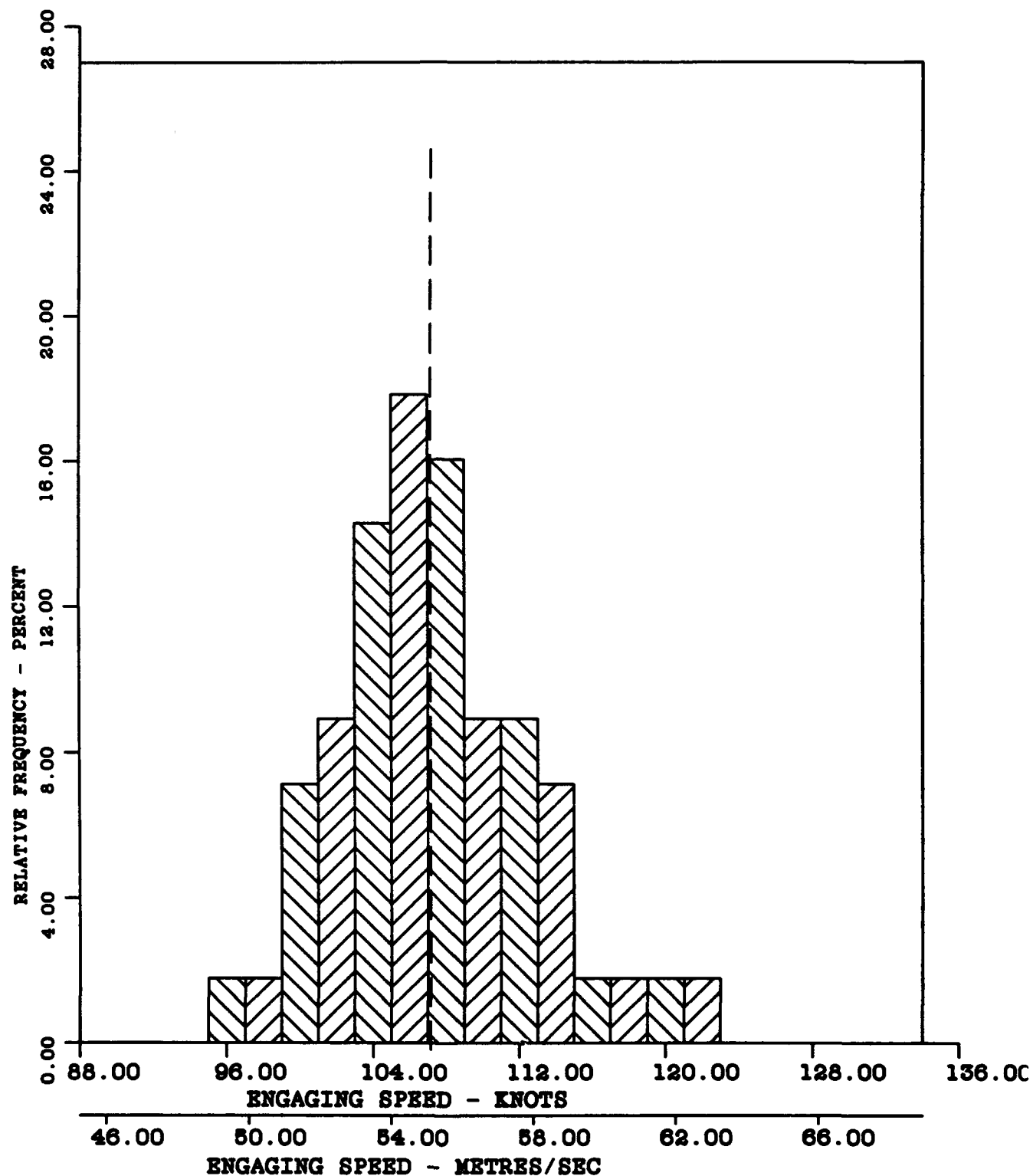


FIGURE J-42. FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -107.15 KNOTS (55.12 METRES/SEC)

A3-0.53

S-5.32 KNOTS (2.73 METRES/SEC)

A4-3.23

CURVE FITTED - NORMAL

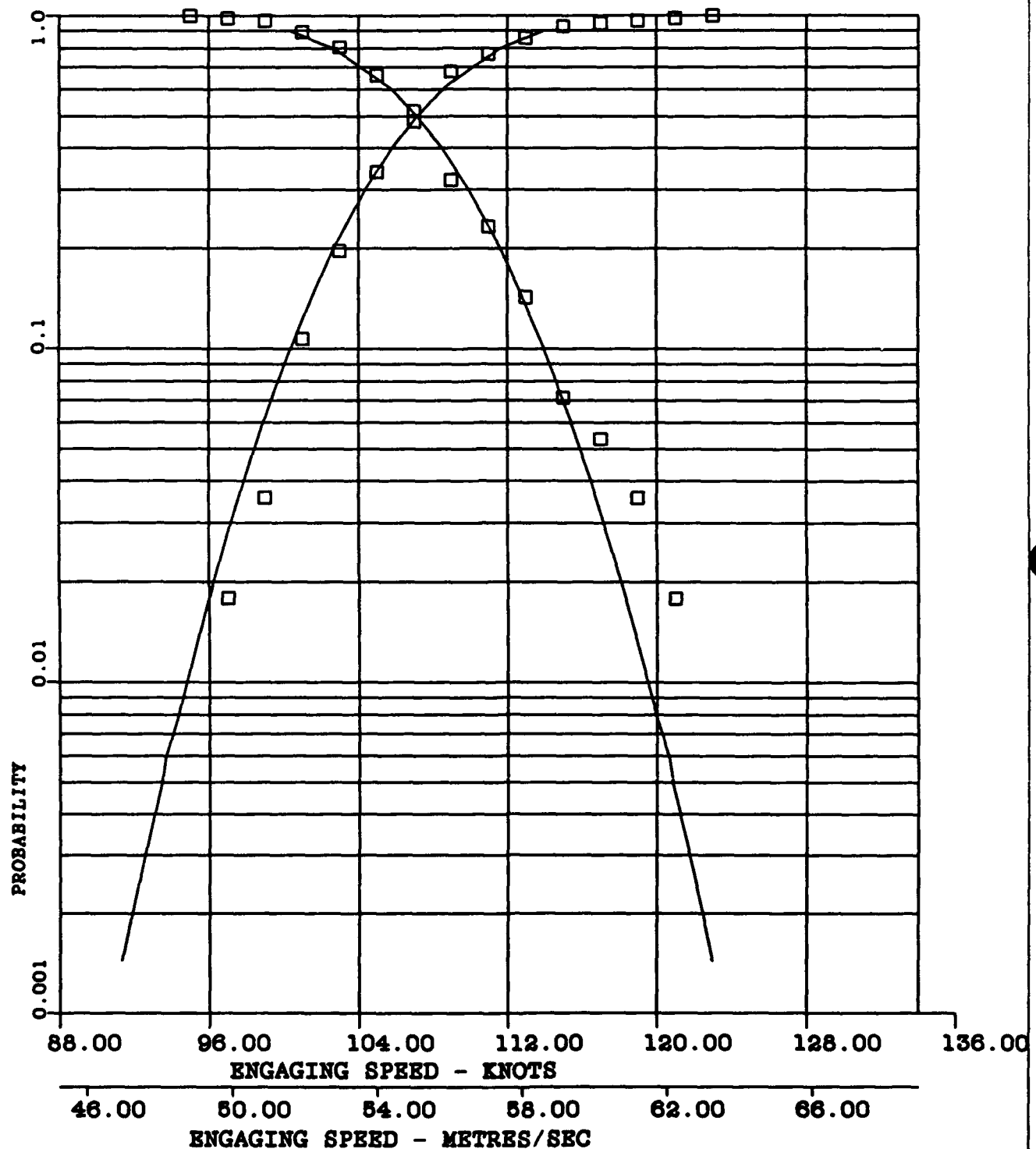


FIGURE J-43 PROBABILITY DISTRIBUTION OF ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-53

 $\bar{X}$ -118.67 KNOTS (61.04 METRES/SEC)

A3-0.29

S-2.39 KNOTS (1.23 METRES/SEC)

A4-3.22

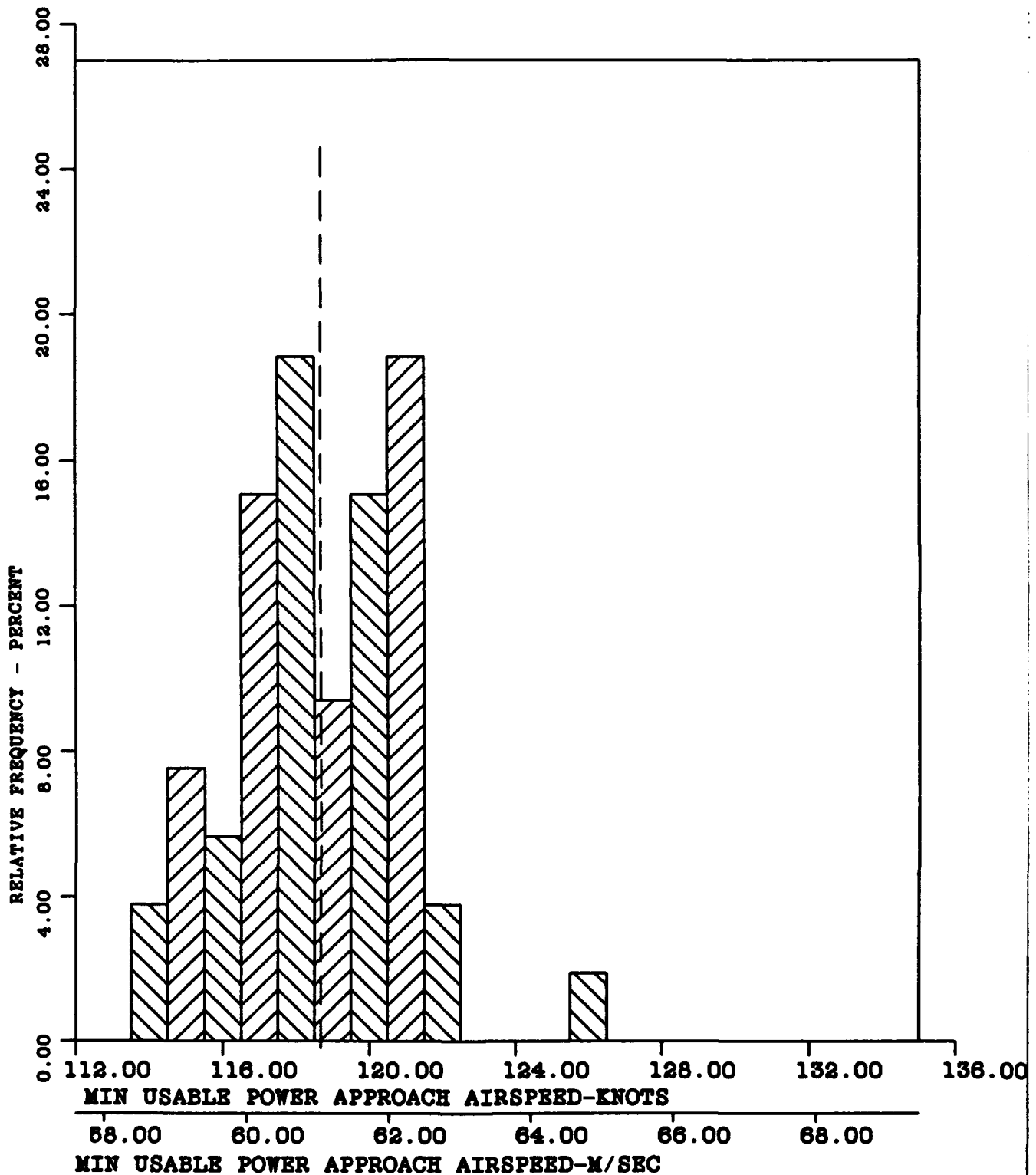


FIGURE J-44 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-53

 $\bar{X}$ -1.13

A3-0.28

S-0.05

A4-2.98

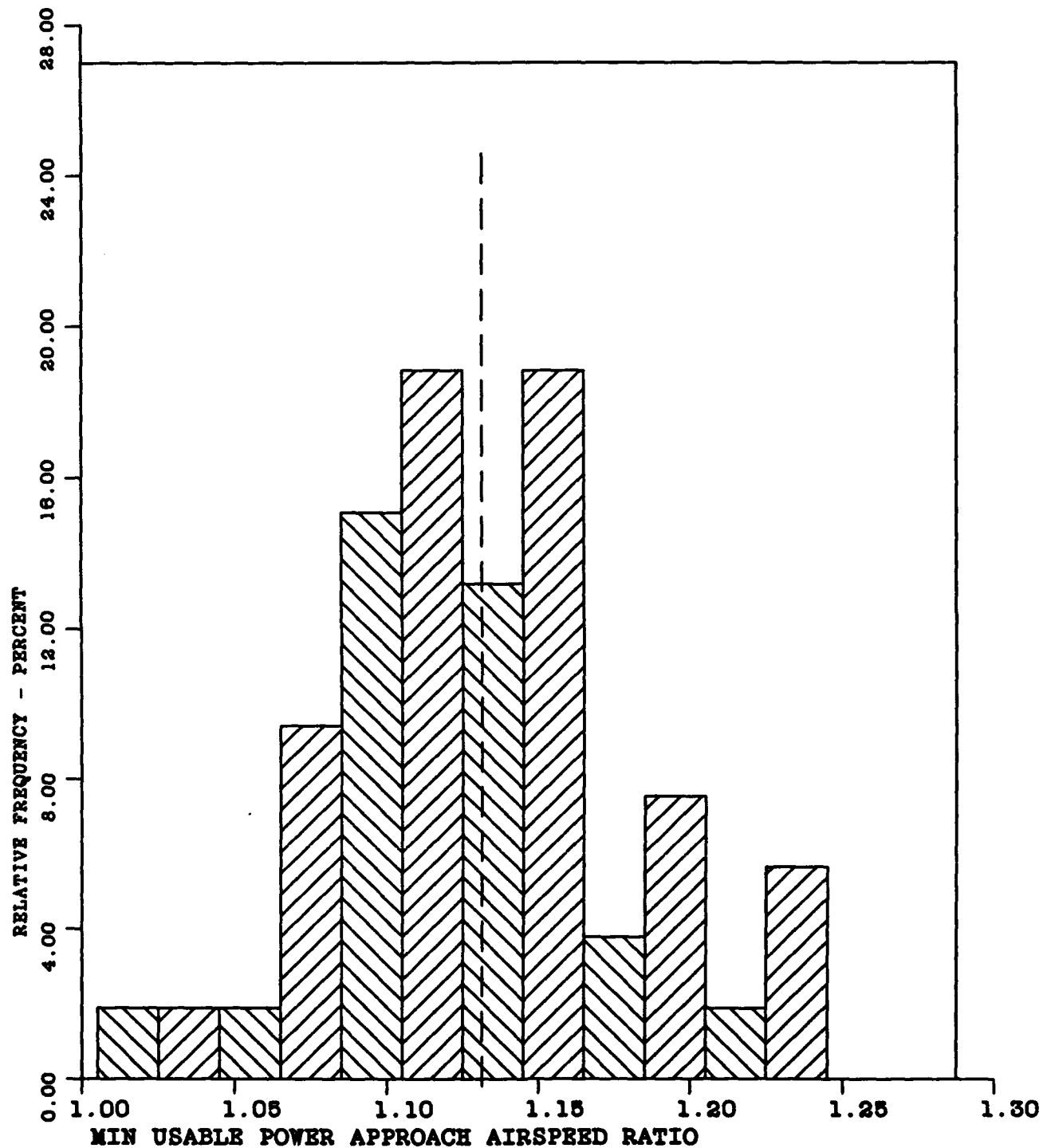


FIGURE J-45 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ --0.43 DEGREES (-0.007 RADIANS)

A3--0.44

S-0.86 DEGREES (0.015 RADIANS)

A4-4.05

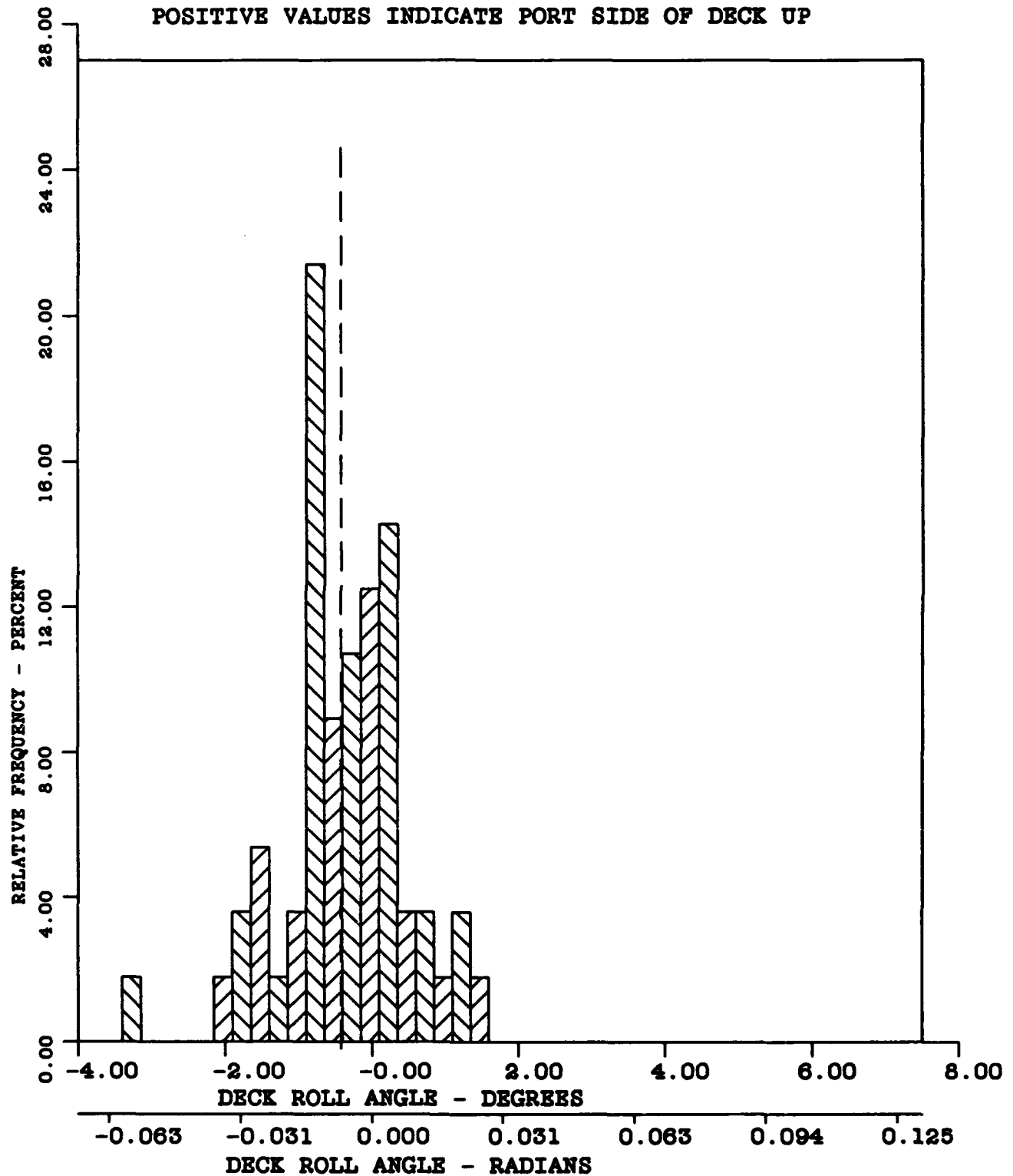


FIGURE J-46 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -0.43 DEGREES (-0.007 RADIANS)

A3--0.44

S-0.86 DEGREES (0.015 RADIANS)

A4-4.05

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

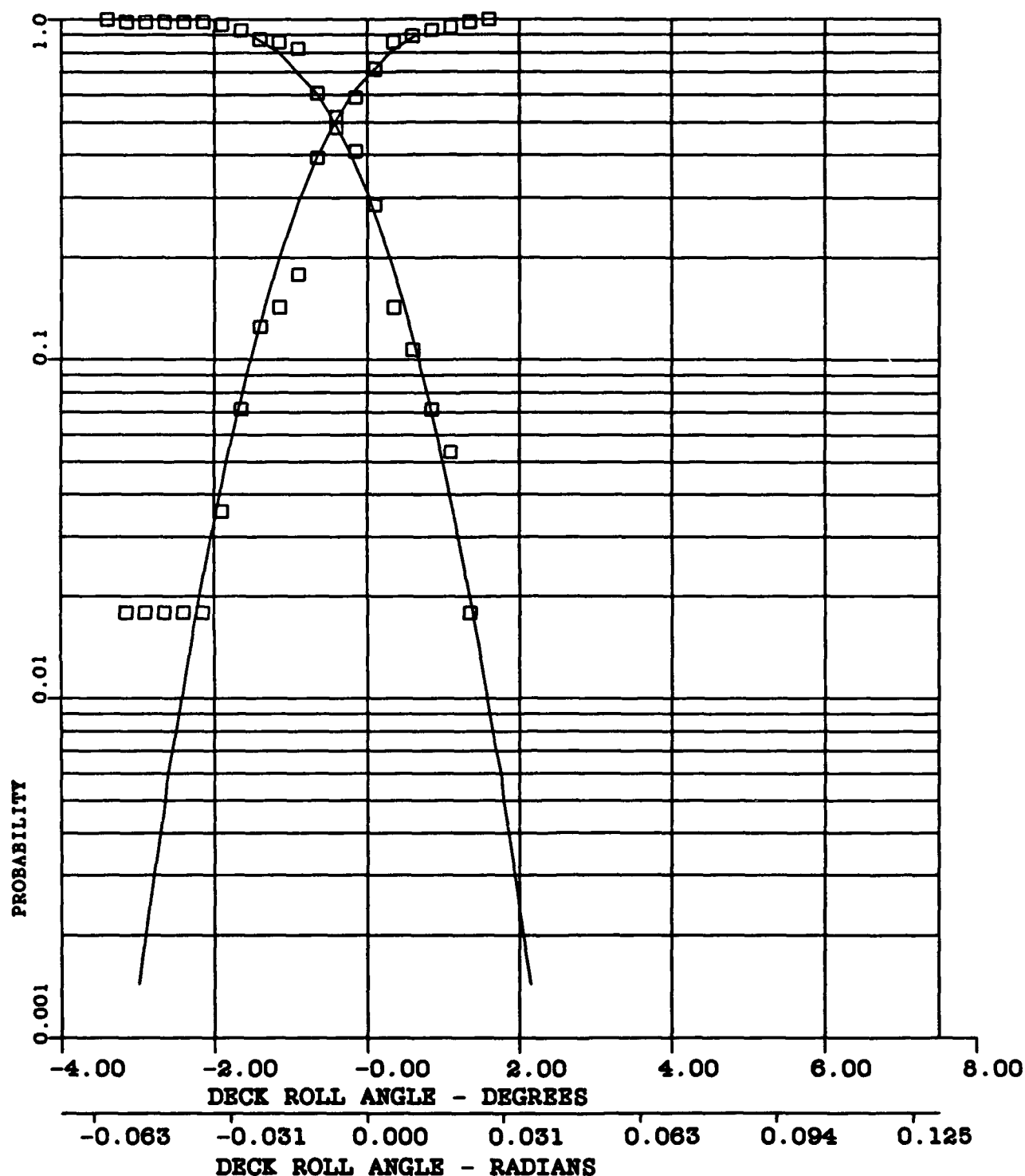


FIGURE J-47 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ --0.33 DEGREES (-0.006 RADIANS)

A3--0.19

S-0.17 DEGREES (0.003 RADIANS)

A4-3.41

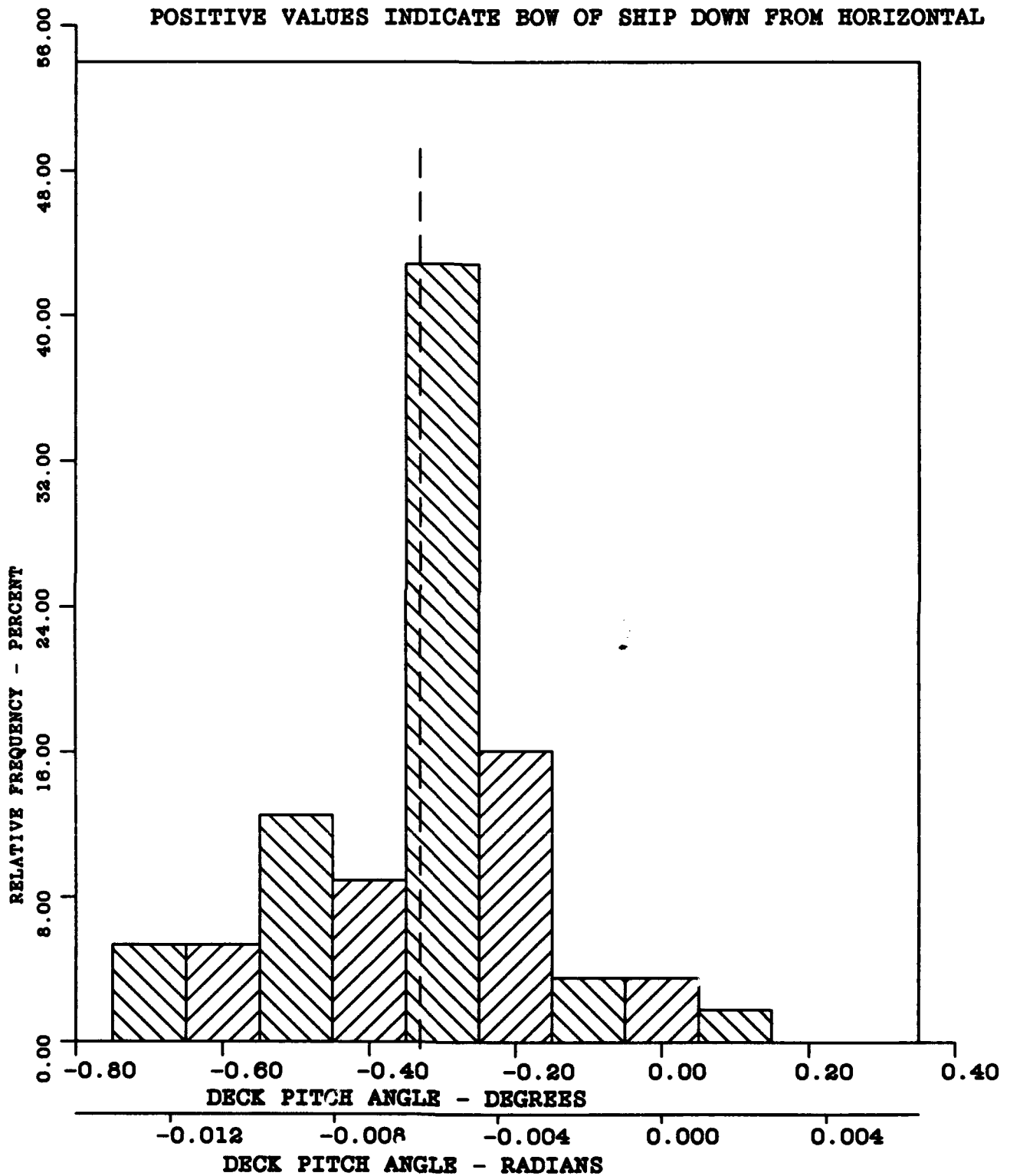


FIGURE J-48 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ =-0.33 DEGREES (-0.006 RADIANS)

A3=-0.19

S=0.17 DEGREES (0.003 RADIANS)

A4=3.41

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

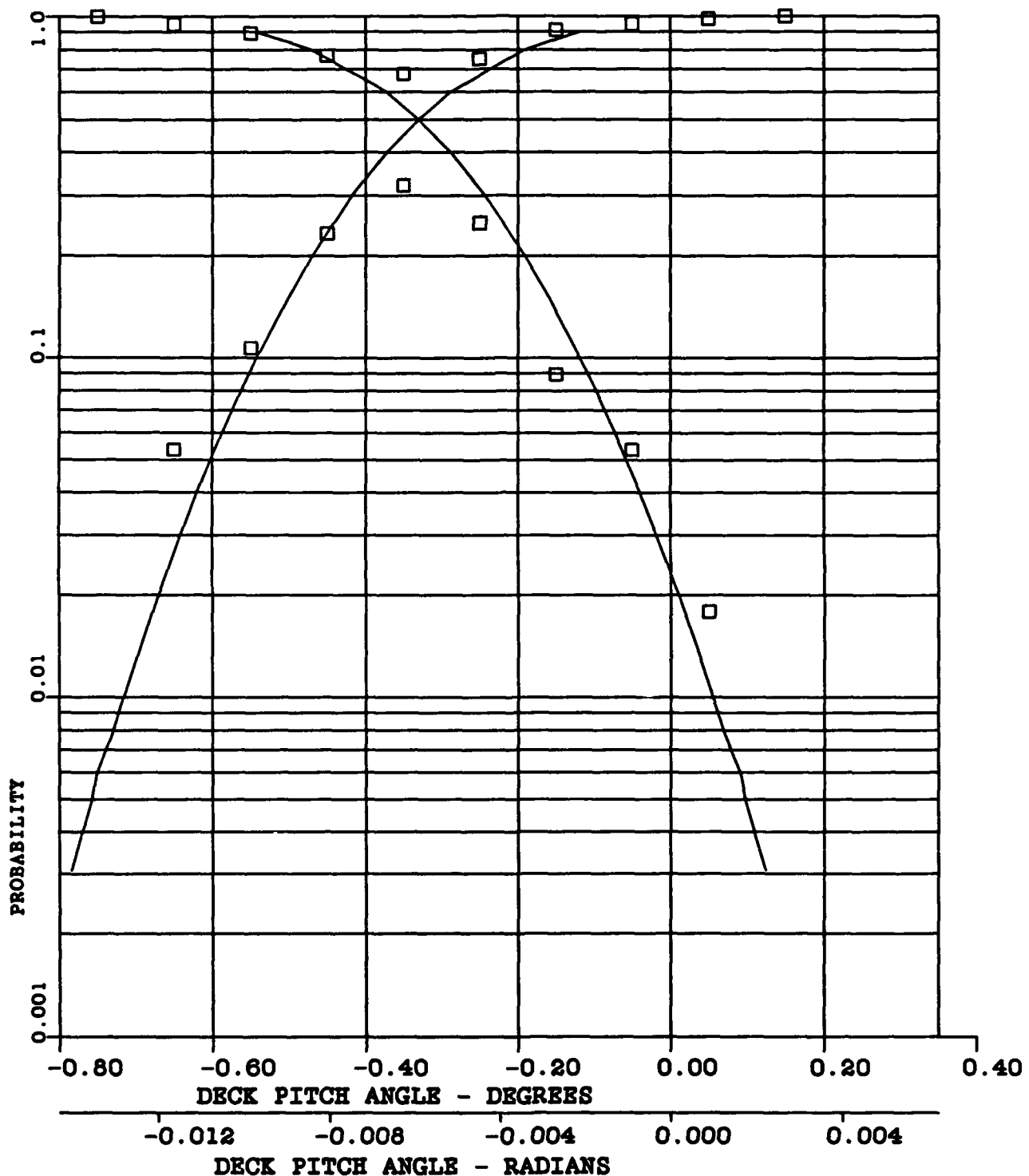


FIGURE J-49 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-53

 $\bar{X}$ -39132.18 POUNDS (17750.36 KILOGRAMS)

A3-0.35

S-1578.60 POUNDS (716.05 KILOGRAMS)

A4-3.36

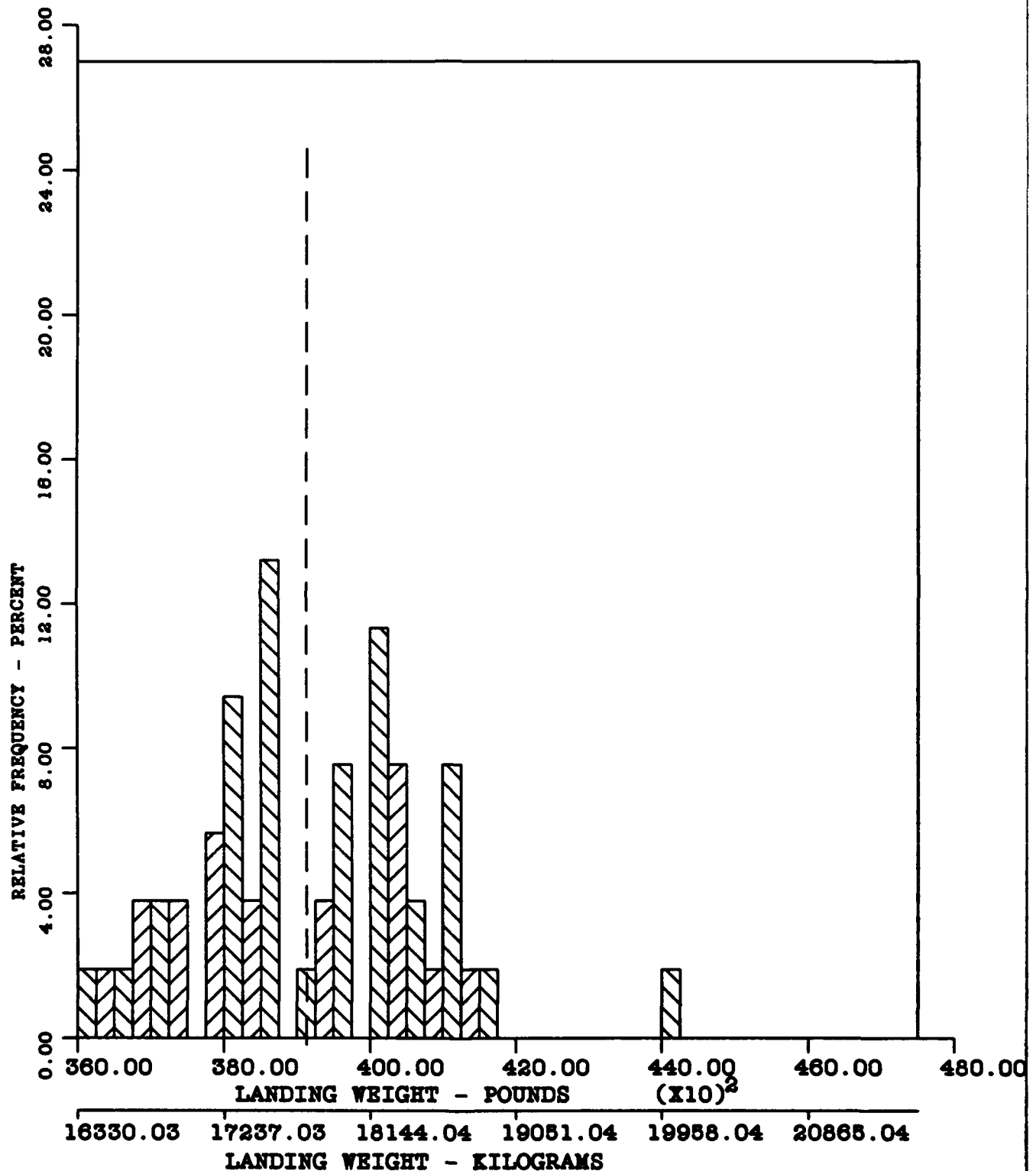


FIGURE J-50 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -1.08 DEG/SEC (0.019 RAD/SEC)

A3-0.31

S-4.84 DEG/SEC (0.084 RAD/SEC)

A4-3.78

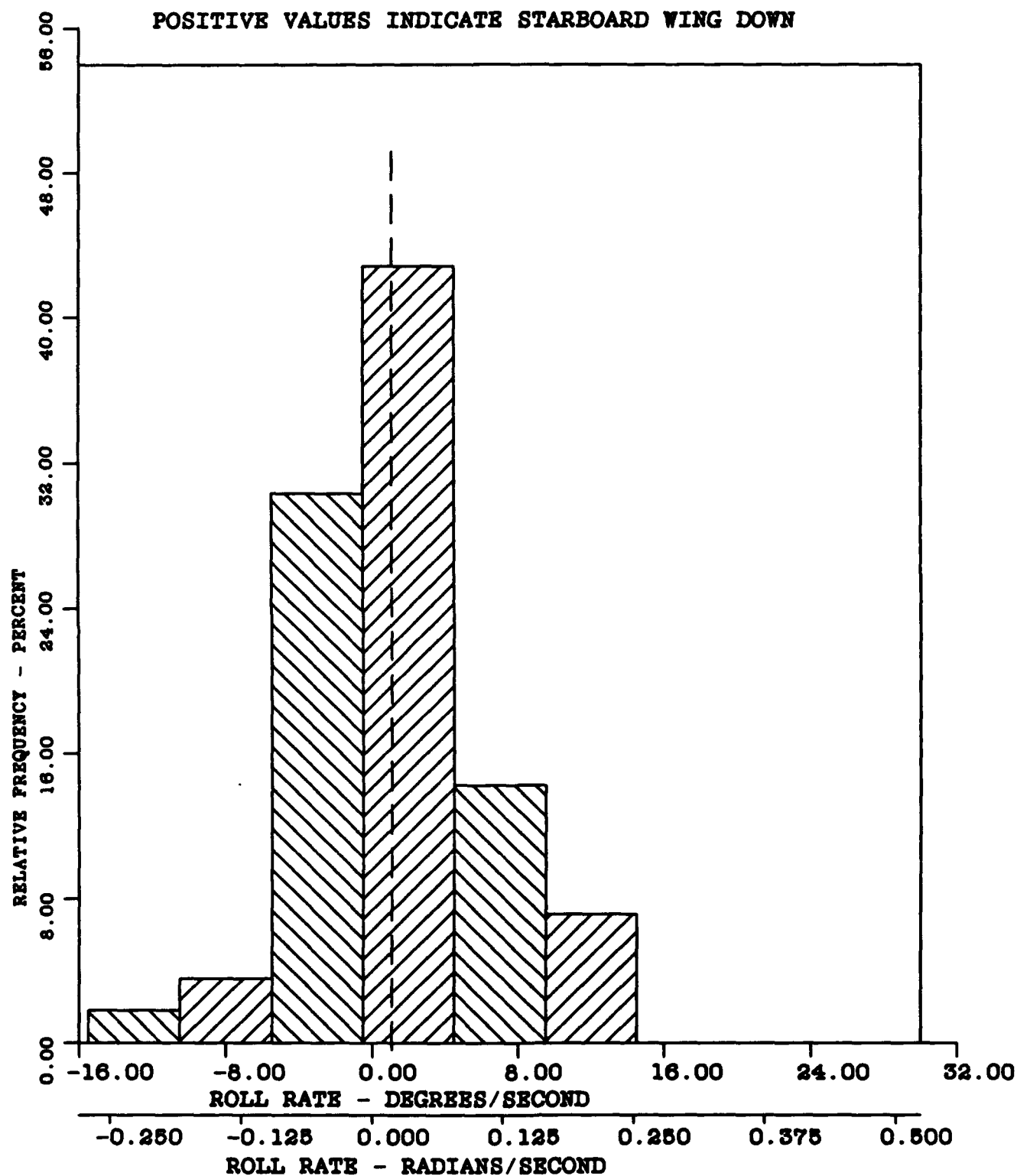


FIGURE J-51 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RAD/SEC)

N-56

 $\bar{X}$ -1.08 DEG/SEC (0.019 RAD/SEC)

A3-0.31

S-4.84 DEG/SEC (0.084 RAD/SEC)

A4-3.78

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

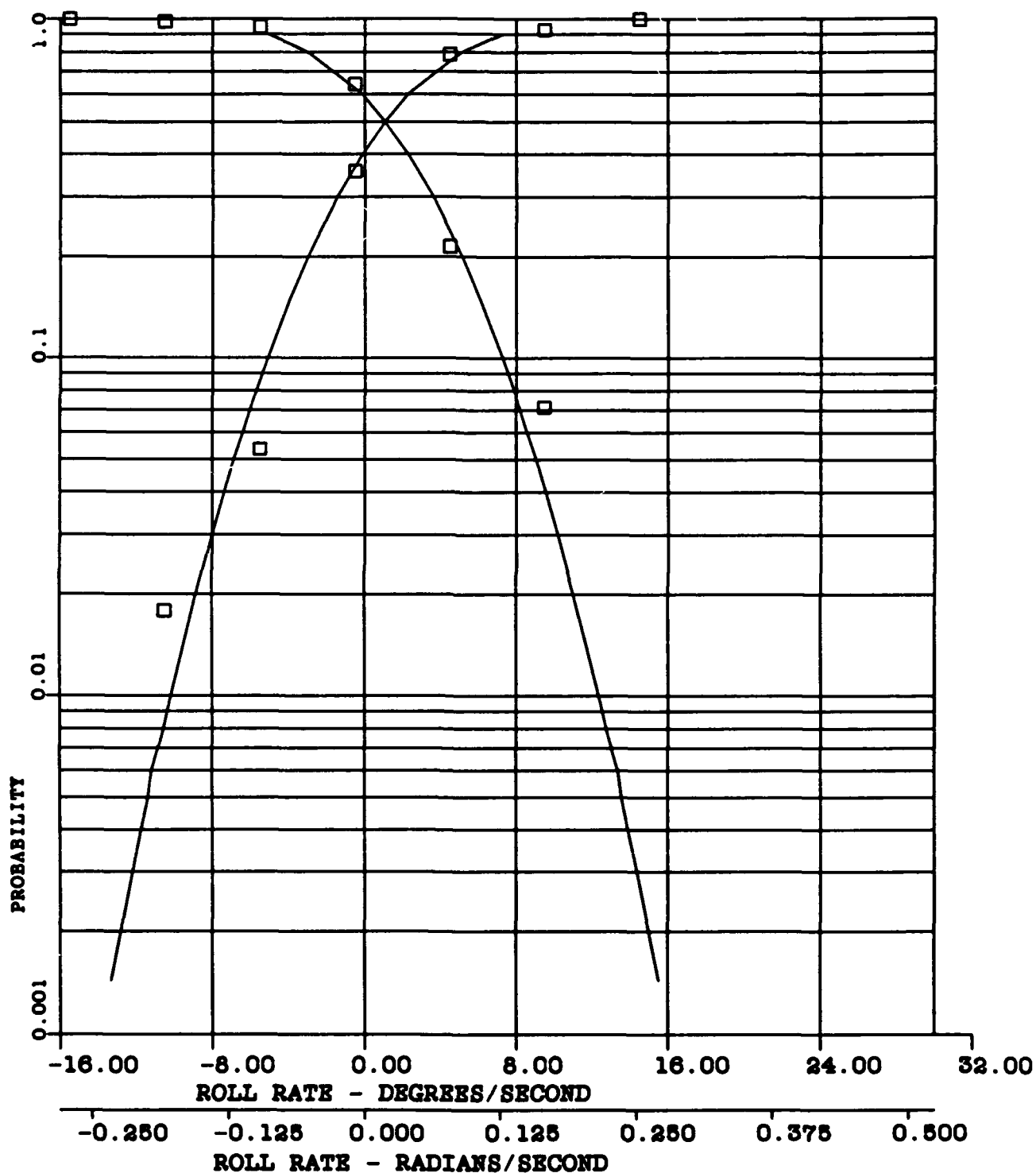


FIGURE J-52 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -1.87 DEG/SEC (0.027 RAD/SEC)

A3-0.68

S-2.33 DEG/SEC (0.041 RAD/SEC)

A4-3.30

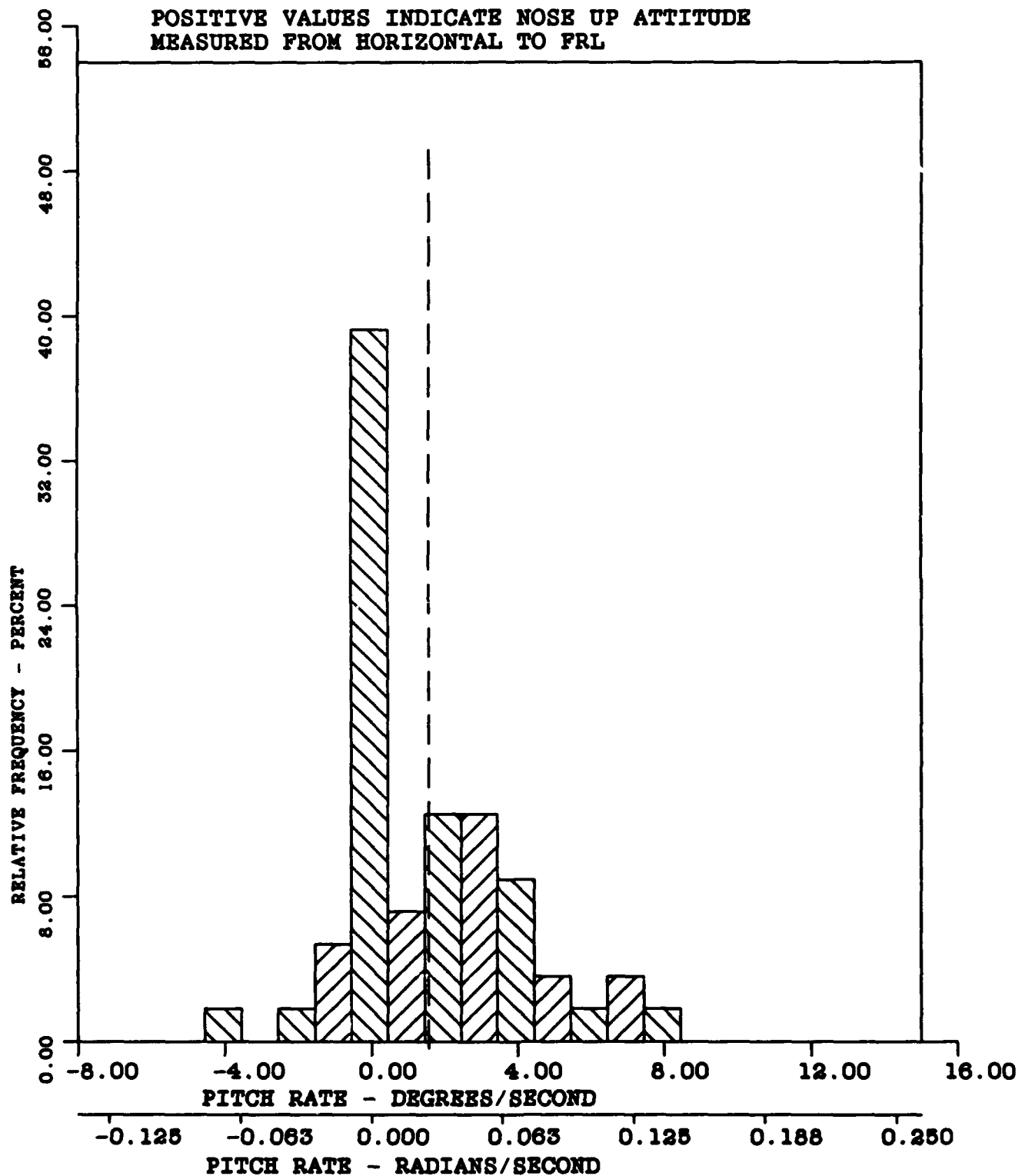


FIGURE J-53 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -1.57 DEG/SEC (0.027 RAD/SEC)

A3-0.68

S-2.33 DEG/SEC (0.041 RAD/SEC)

A4-3.30

CURVE FITTED - PEARSON TYPE III

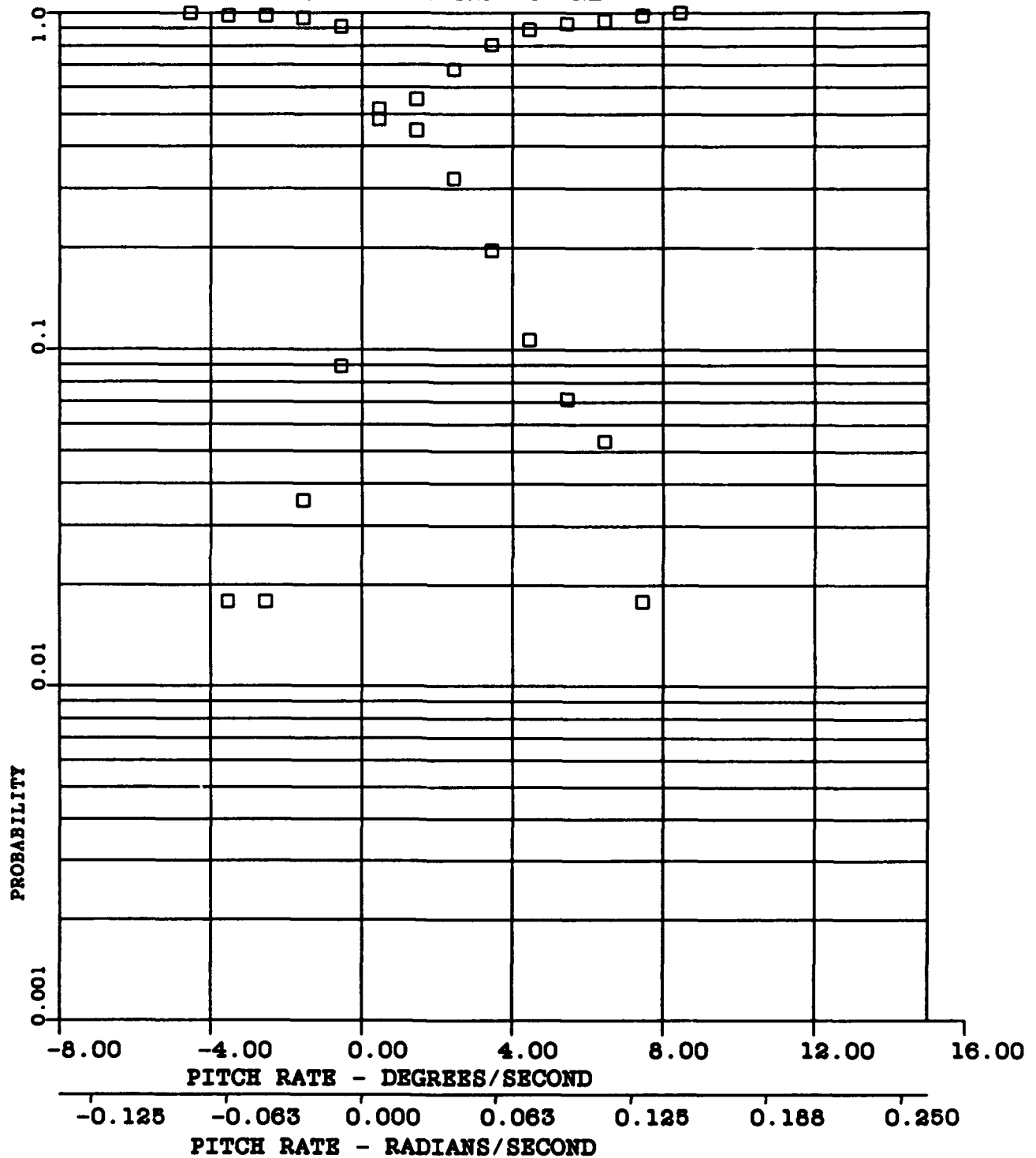
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE J-54 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

$\bar{X}$ -2.89 DEGREES (-0.050 RADIANS)

S-1.43 DEGREES (0.025 RADIANS)

A3--0.69

A4-6.25

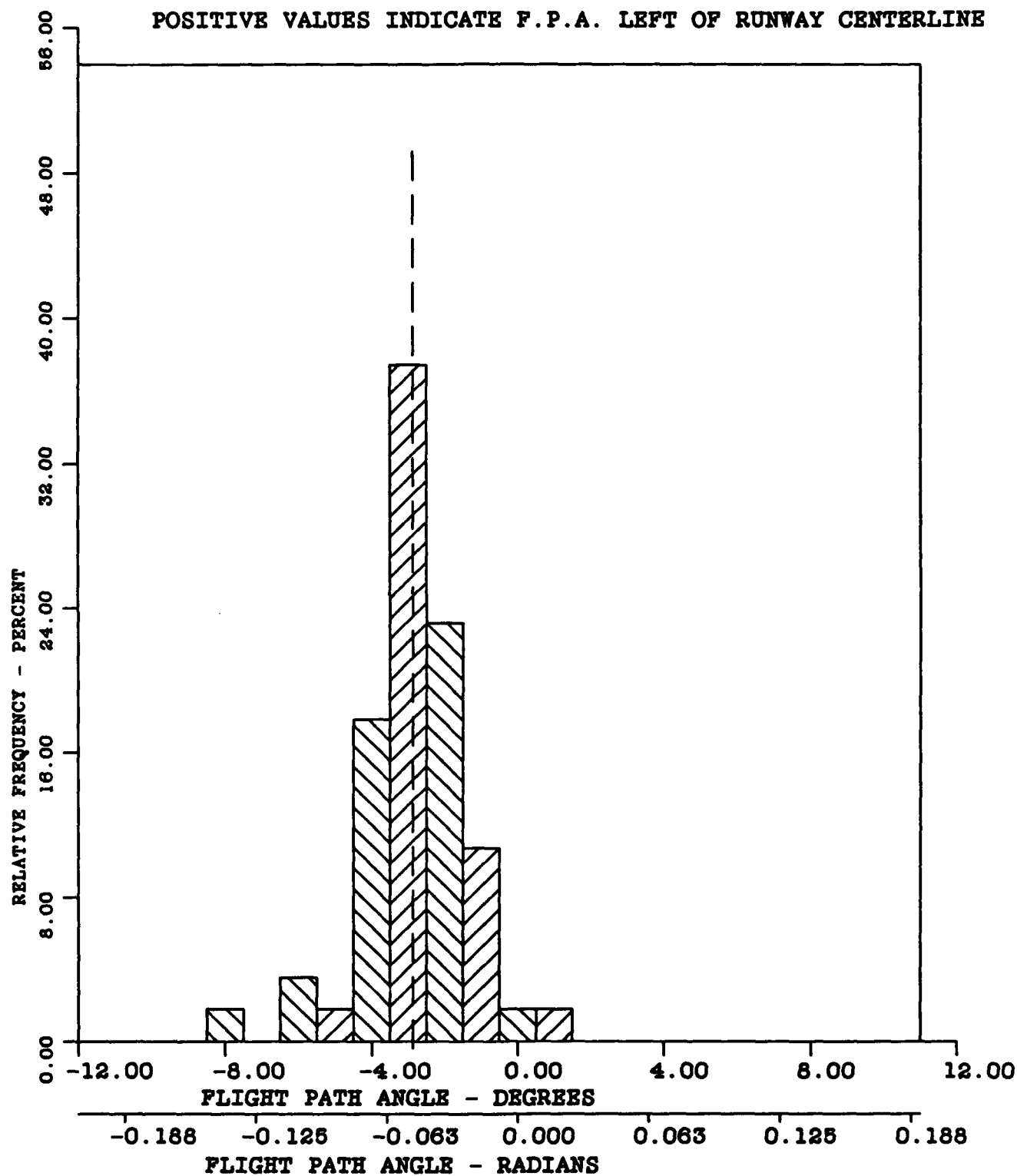


FIGURE J-55 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ --2.89 DEGREES (-0.050 RADIANS)

A3--0.69

S-1.43 DEGREES (0.025 RADIANS)

A4-6.25

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

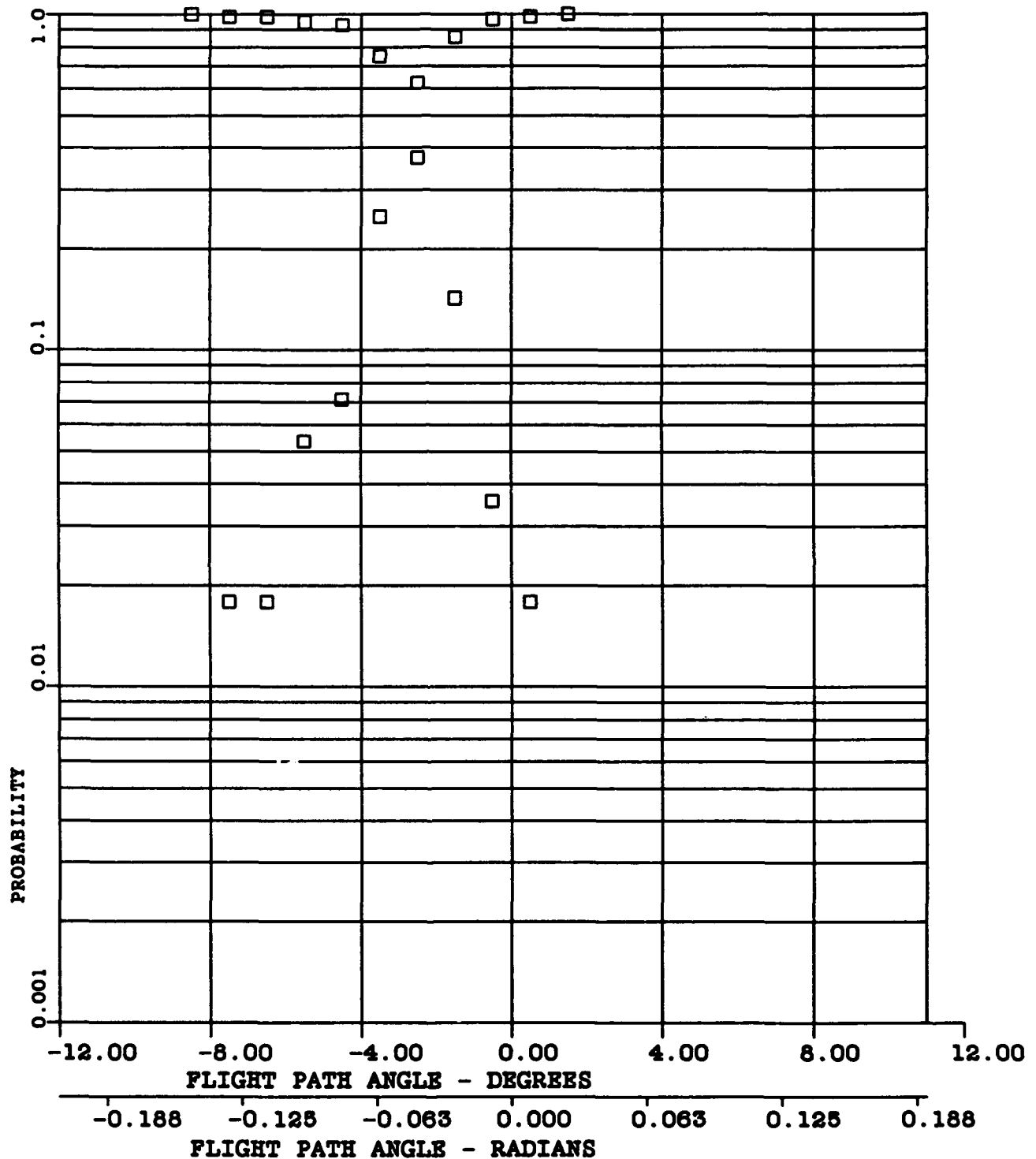


FIGURE J-56 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -3.03 DEGREES (0.053 RADIANS)

A3-0.31

S-2.60 DEGREES (0.045 RADIANS)

A4-4.65

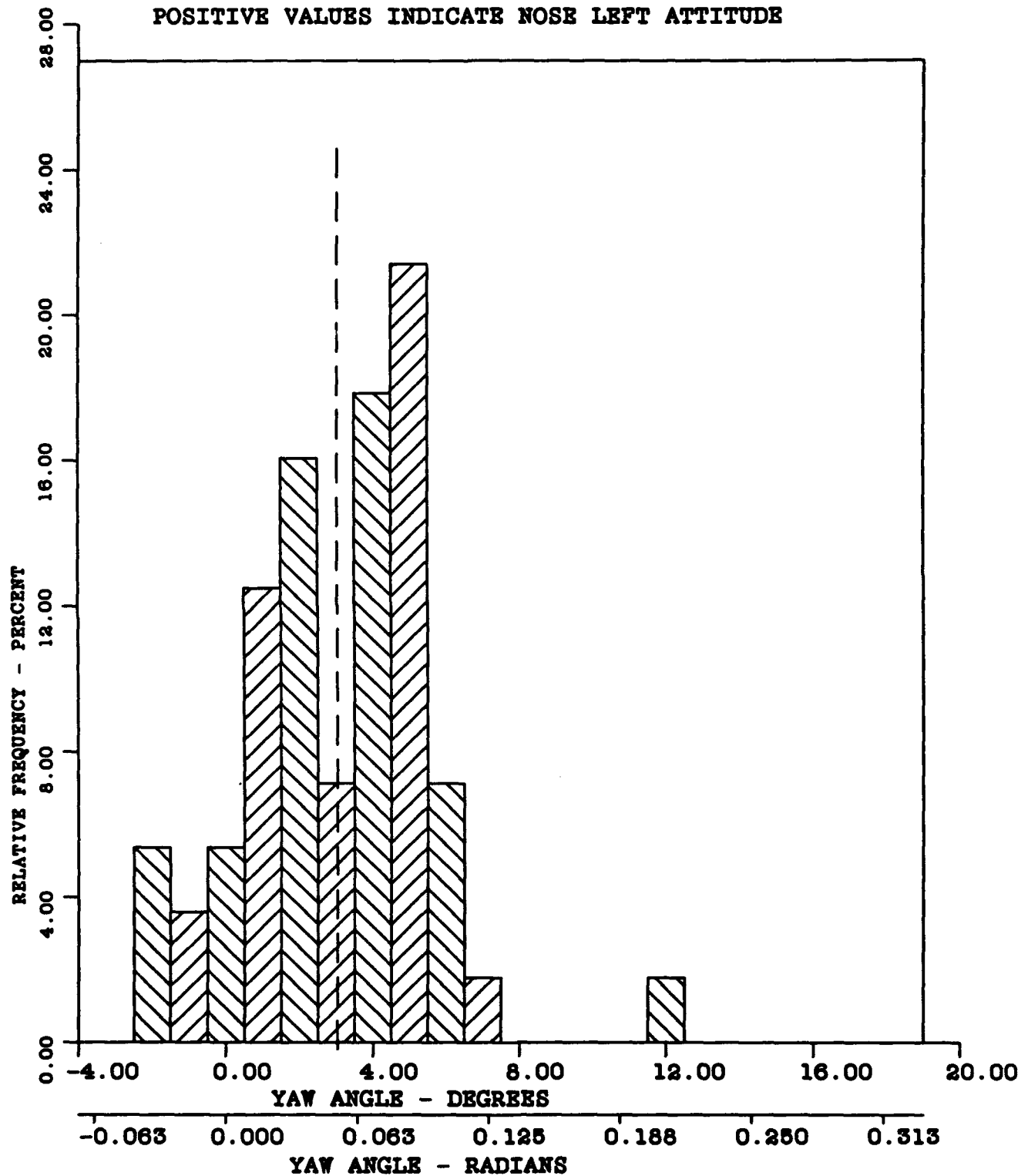


FIGURE J-57 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-56

 $\bar{X}$ -3.03 DEGREES (0.053 RADIANS)

A3-0.31

S-2.60 DEGREES (0.045 RADIANS)

A4-4.65

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

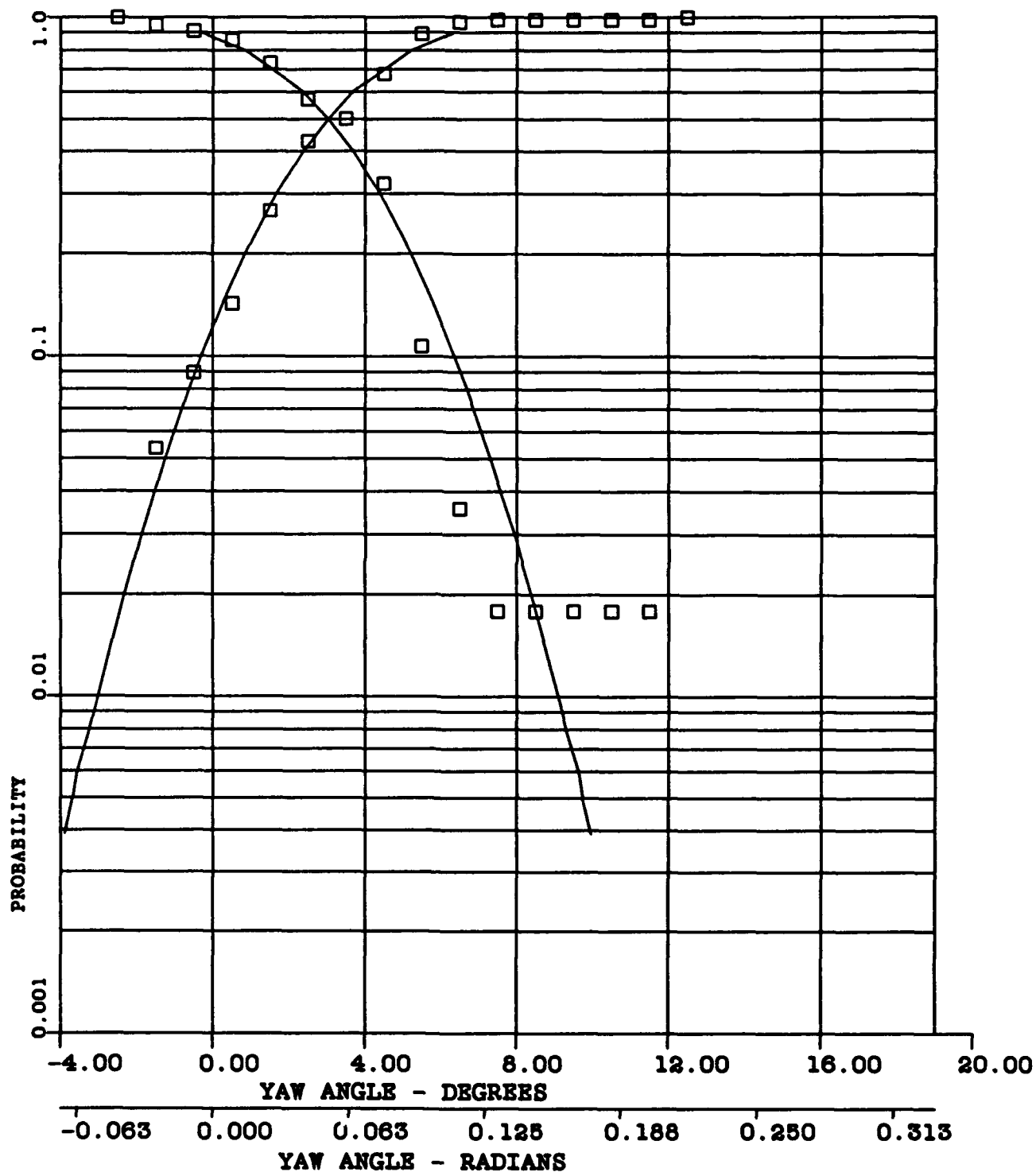


FIGURE J-58 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX K**

**EA-6B AIRCRAFT**

**NIGHT CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

## Appendix K:

Frequency and Probability Distributions,  
EA-6B Aircraft, Night Landings

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MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -28.59 KNOTS (14.71 METRES/SEC)

A3--0.63

S-1.62 KNOTS (0.83 METRES/SEC)

A4-2.42

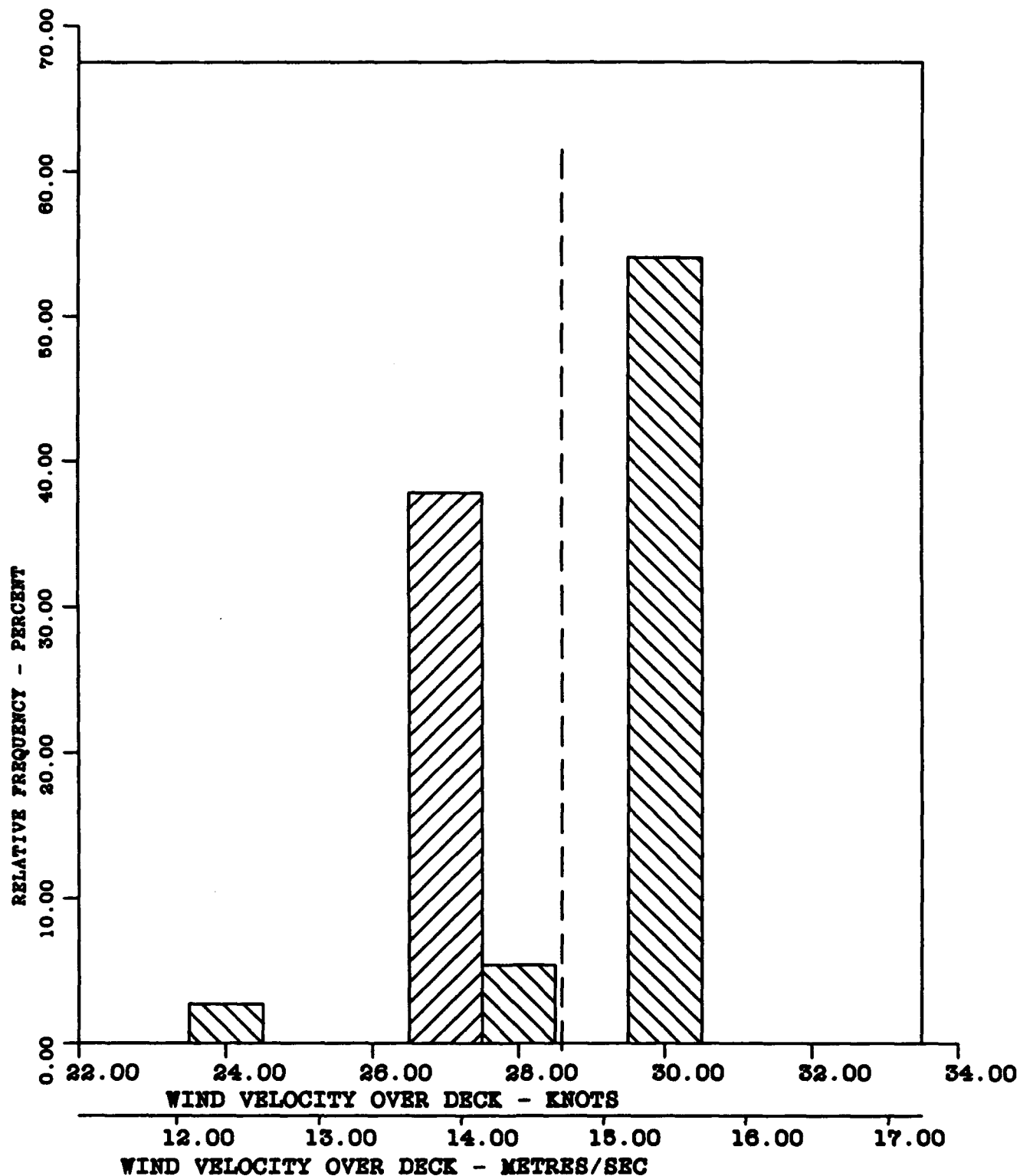


FIGURE K-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -28.59 KNOTS (14.71 METRES/SEC)

A3--0.63

S-1.62 KNOTS (0.83 METRES/SEC)

A4-2.42

CURVE FITTED - NORMAL

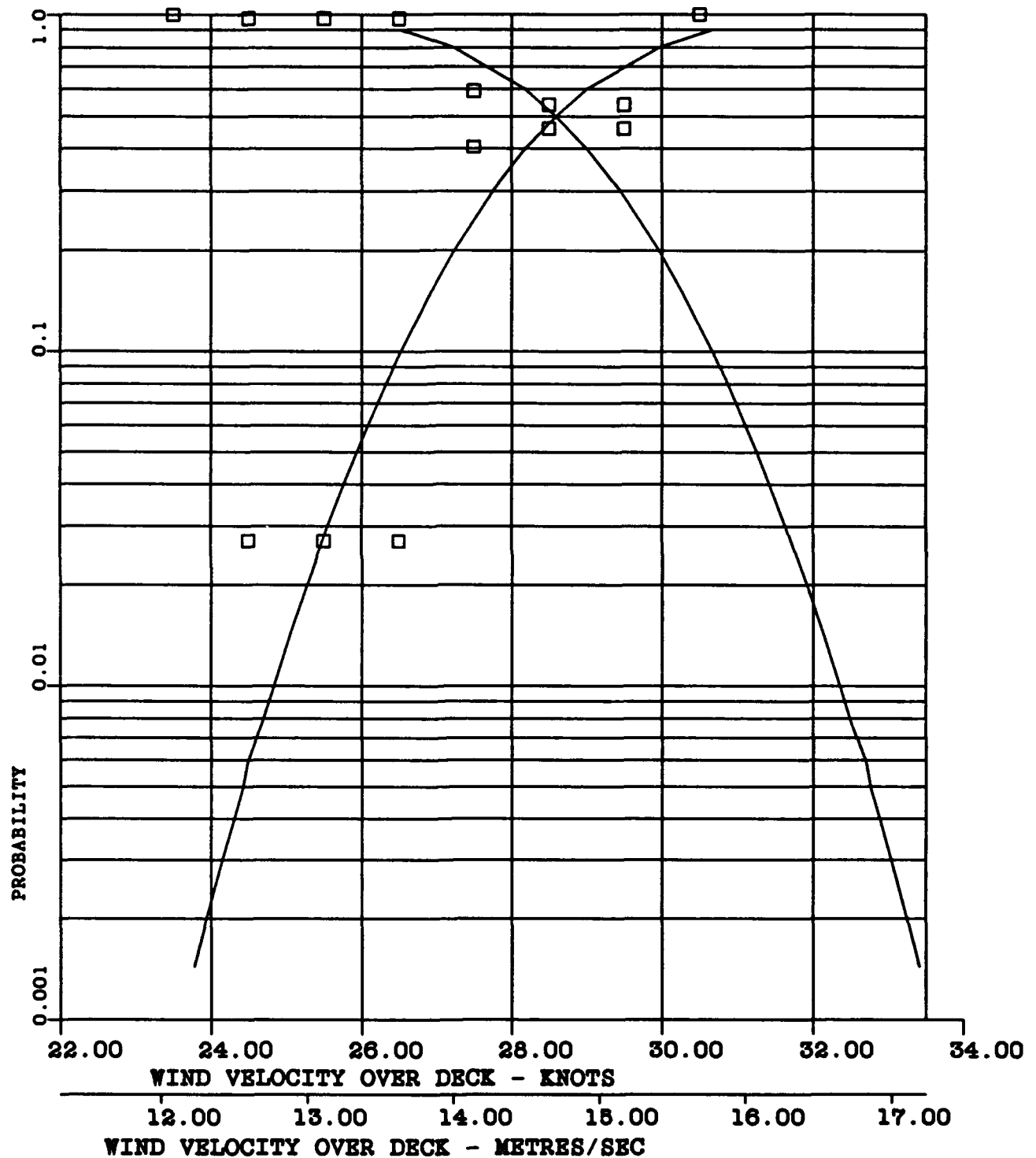


FIGURE K-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -137.28 KNOTS (70.62 METRES/SEC)

A3-2.20

S-6.65 KNOTS (3.42 METRES/SEC)

A4-10.97

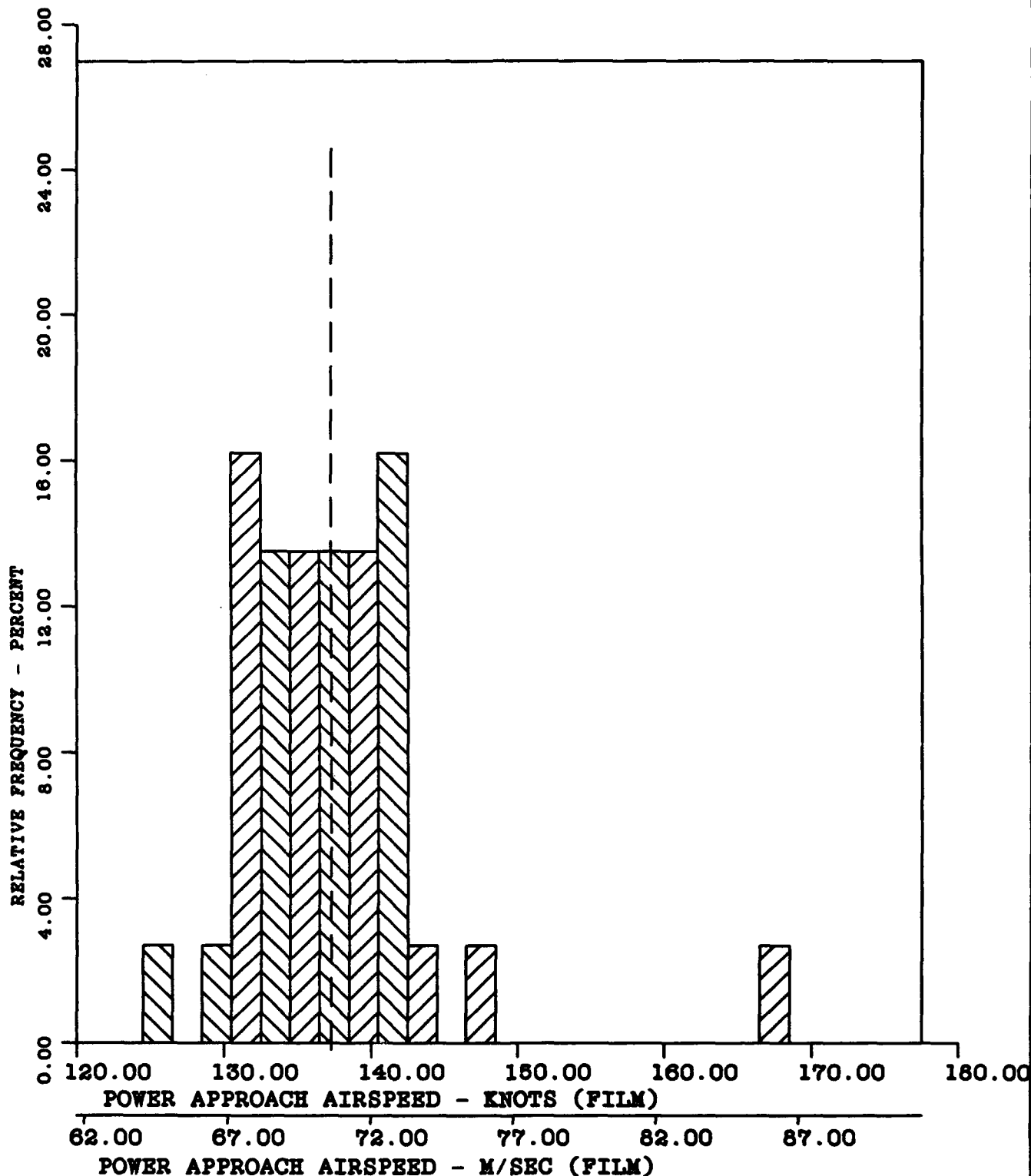


FIGURE K-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -137.28 KNOTS (70.62 METRES/SEC)

A3-2.20

S-6.65 KNOTS (3.42 METRES/SEC)

A4-10.97

CURVE FITTED - PEARSON TYPE III

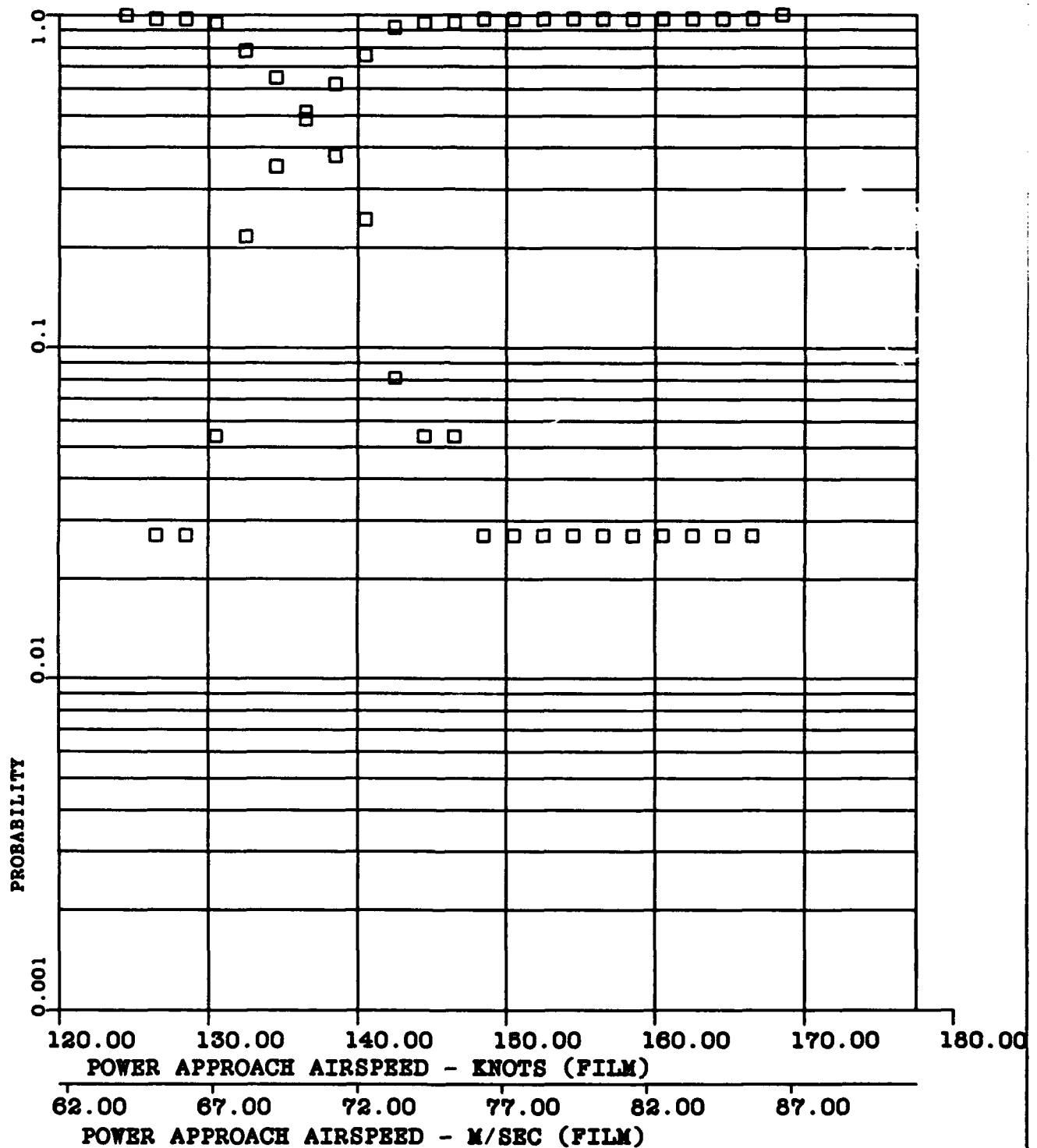


FIGURE K-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -6.65 FEET/SEC (2.03 METRES/SEC)

A3-0.31

S-3.41 FEET/SEC (1.04 METRES/SEC)

A4-2.81

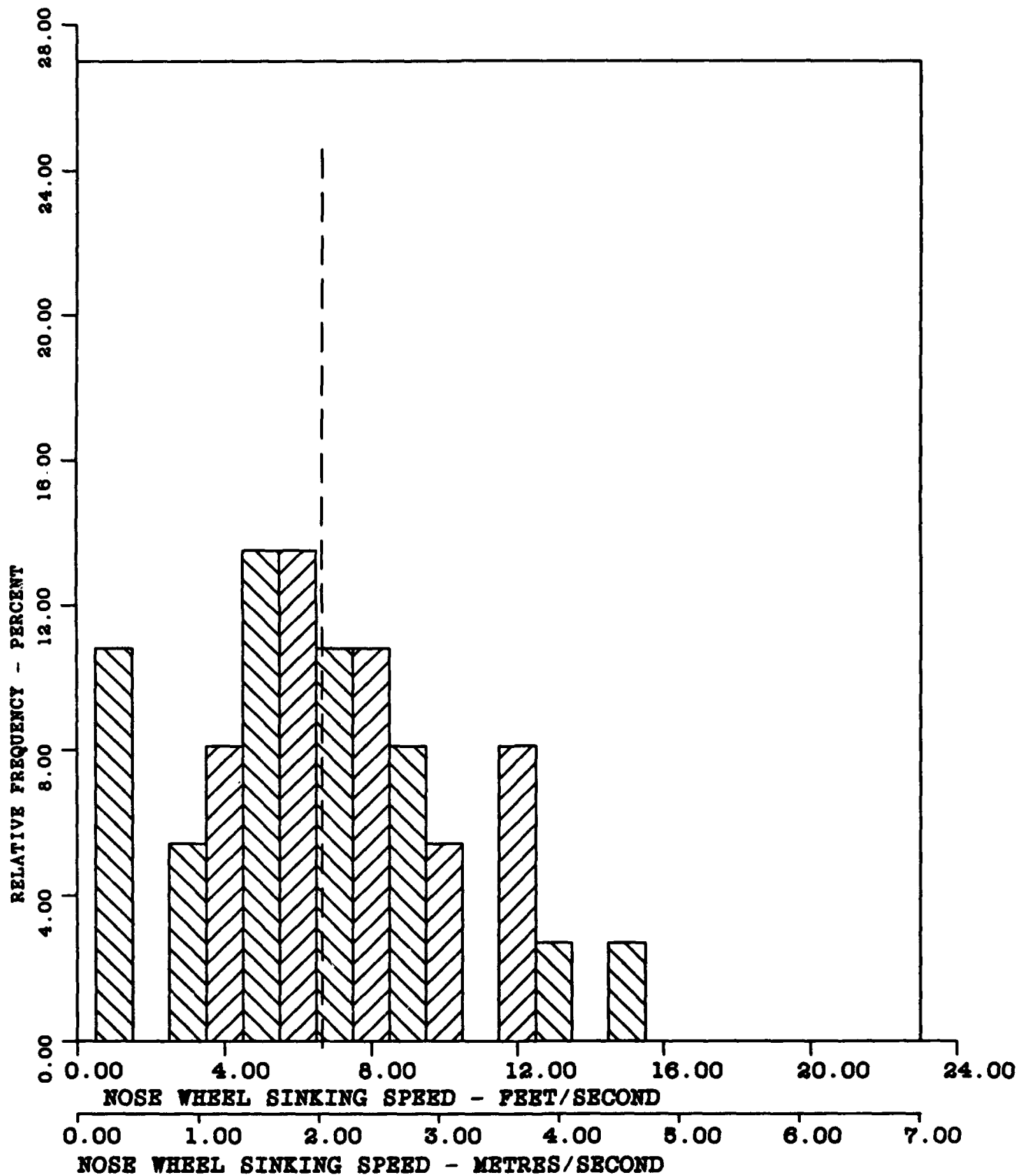


FIGURE K-5 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -6.65 FEET/SEC (2.03 METRES/SEC)

A3-0.31

S-3.41 FEET/SEC (1.04 METRES/SEC)

A4-2.81

CURVE FITTED - NORMAL

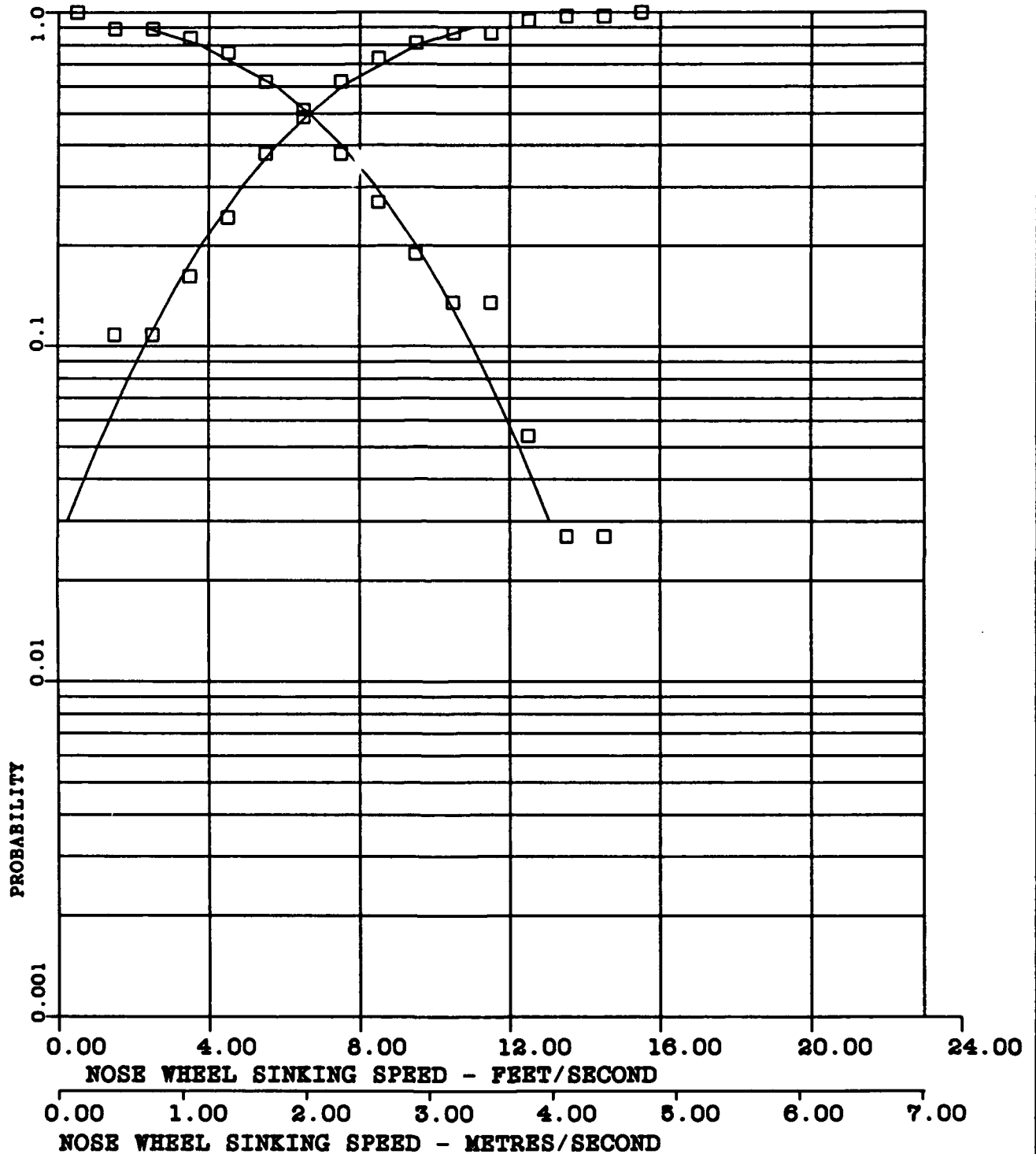


FIGURE K-6 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -10.27 FEET/SEC (3.13 METRES/SEC)

A3--0.01

S-2.50 FEET/SEC (0.76 METRES/SEC)

A4-1.98

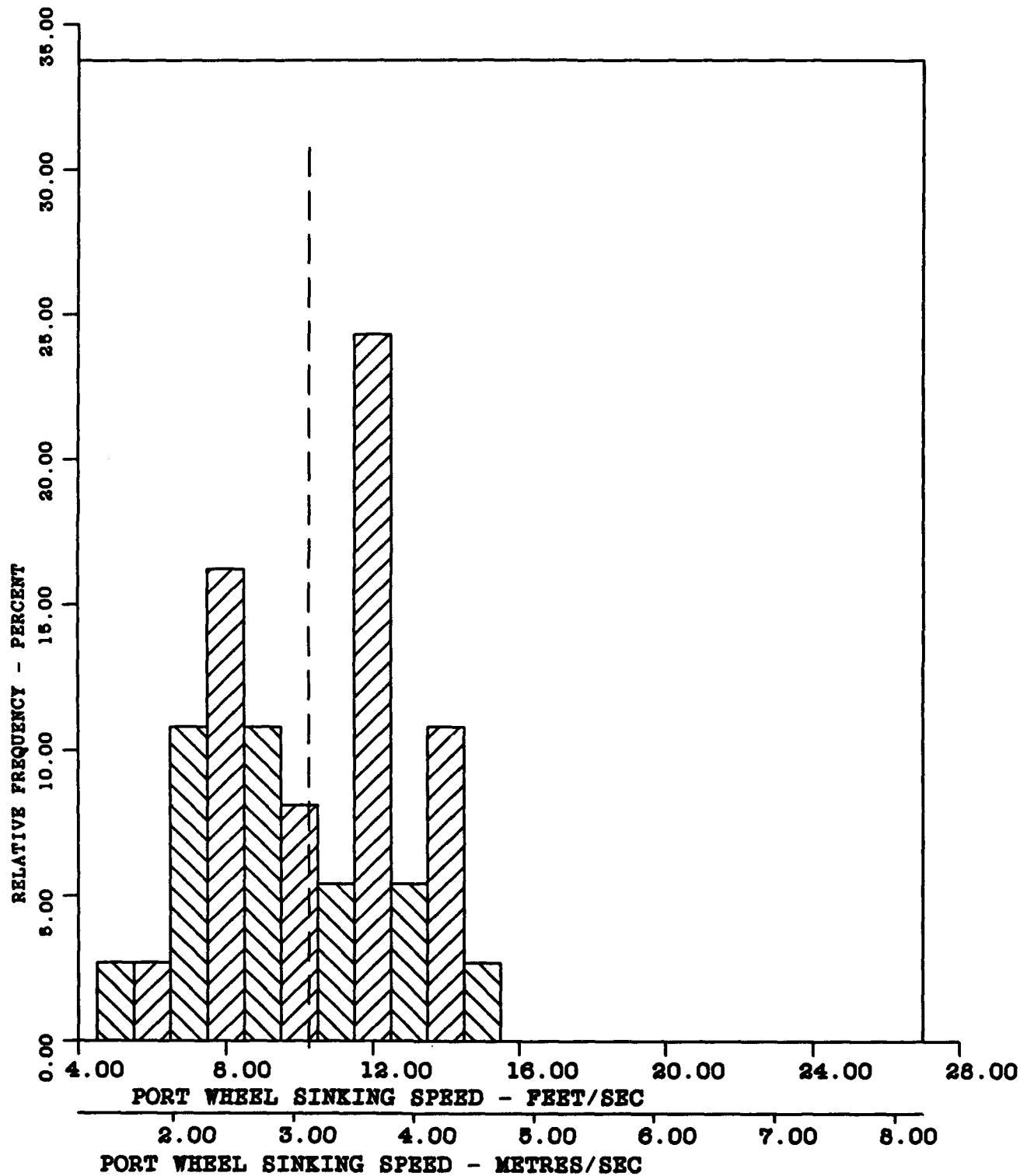


FIGURE K-7 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-68)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -10.27 FEET/SEC (3.13 METRES/SEC)

A3--0.01

S-2.50 FEET/SEC (0.76 METRES/SEC)

A4-1.98

CURVE FITTED - NORMAL

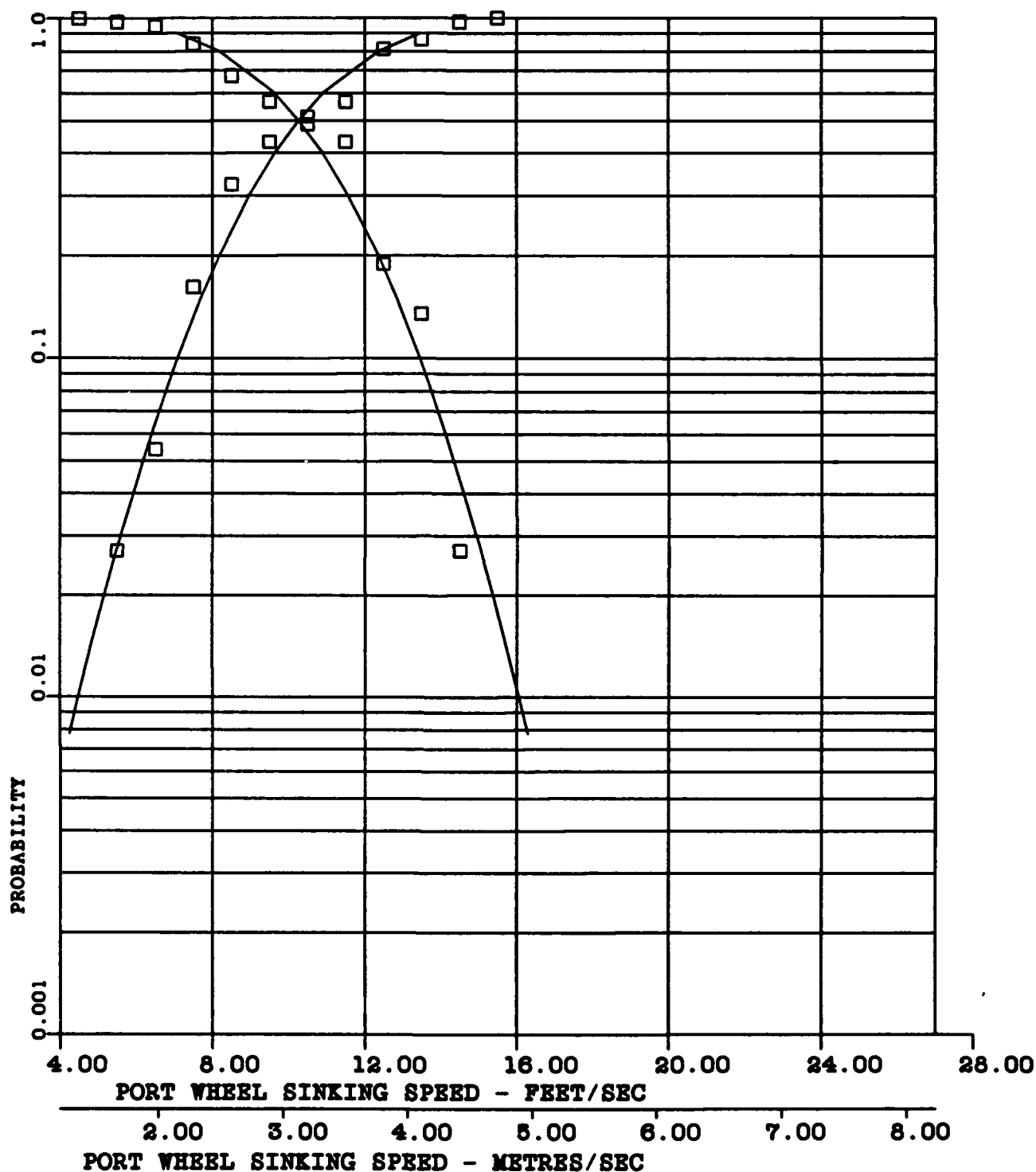


FIGURE K-8 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -9.85 FEET/SEC (3.00 METRES/SEC)

A3-0.20

S-2.12 FEET/SEC (0.65 METRES/SEC)

A4-2.17

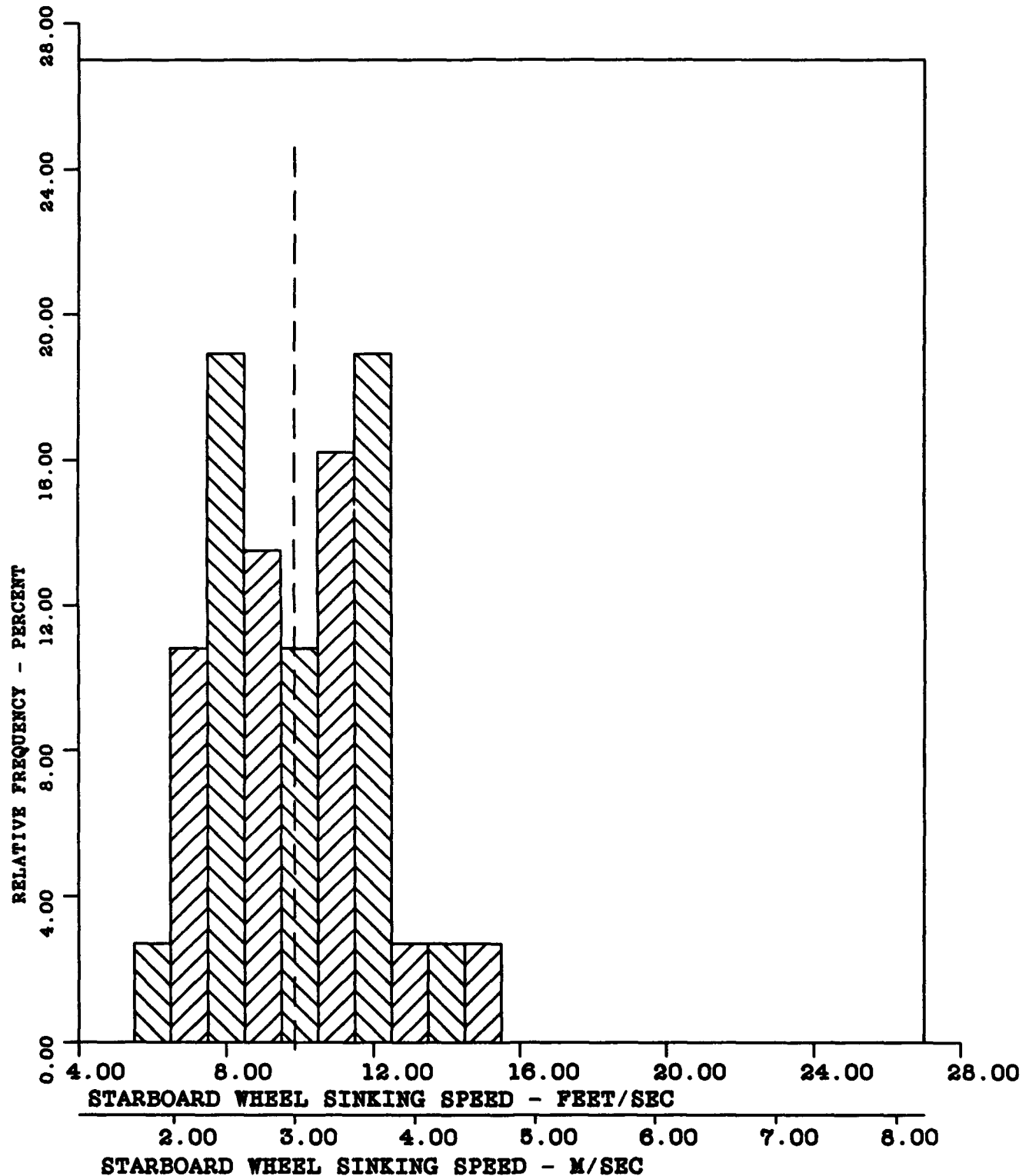


FIGURE K-9 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -9.85 FEET/SEC (3.00 METRES/SEC)

A3-0.20

S-2.12 FEET/SEC (0.65 METRES/SEC)

A4-2.17

CURVE FITTED - NORMAL

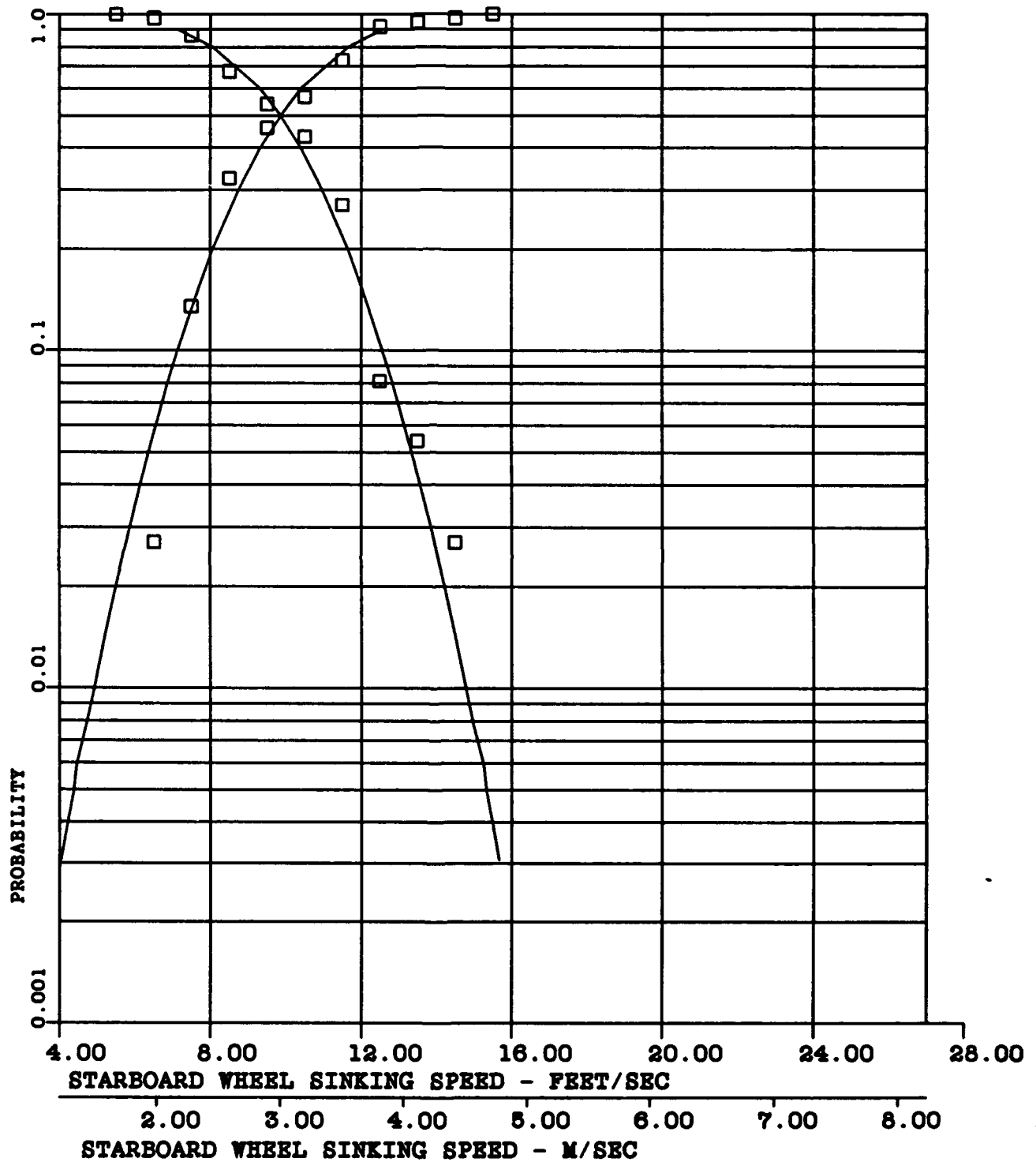


FIGURE K-10. PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -10.12 FEET/SEC (3.09 METRES/SEC)

A3-0.02

S-2.21 FEET/SEC (0.67 METRES/SEC)

A4-2.08

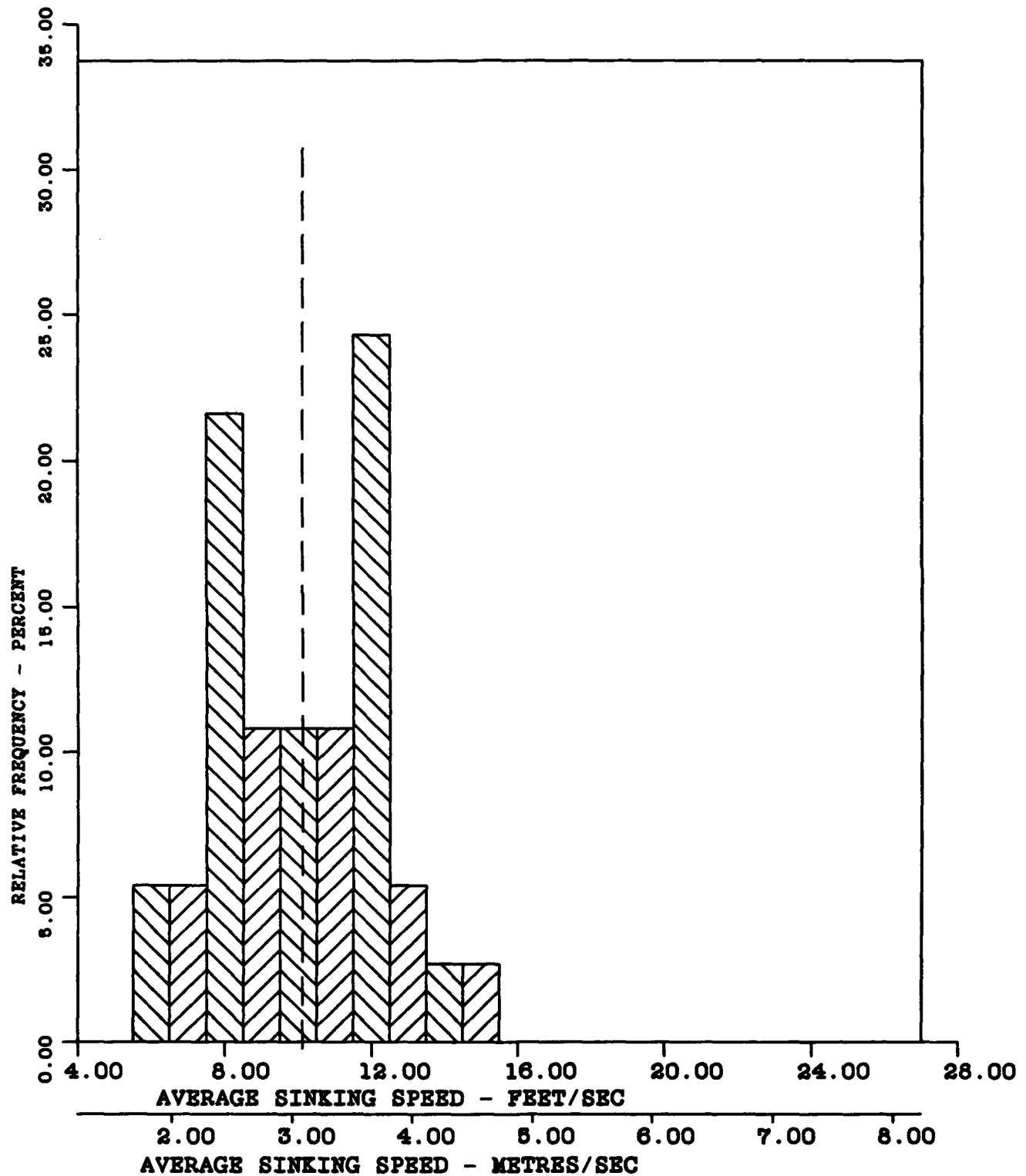


FIGURE K-11 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -10.12 FEET/SEC (3.09 METRES/SEC)

A3-0.02

S-2.21 FEET/SEC (0.67 METRES/SEC)

A4-2.08

CURVE FITTED - NORMAL

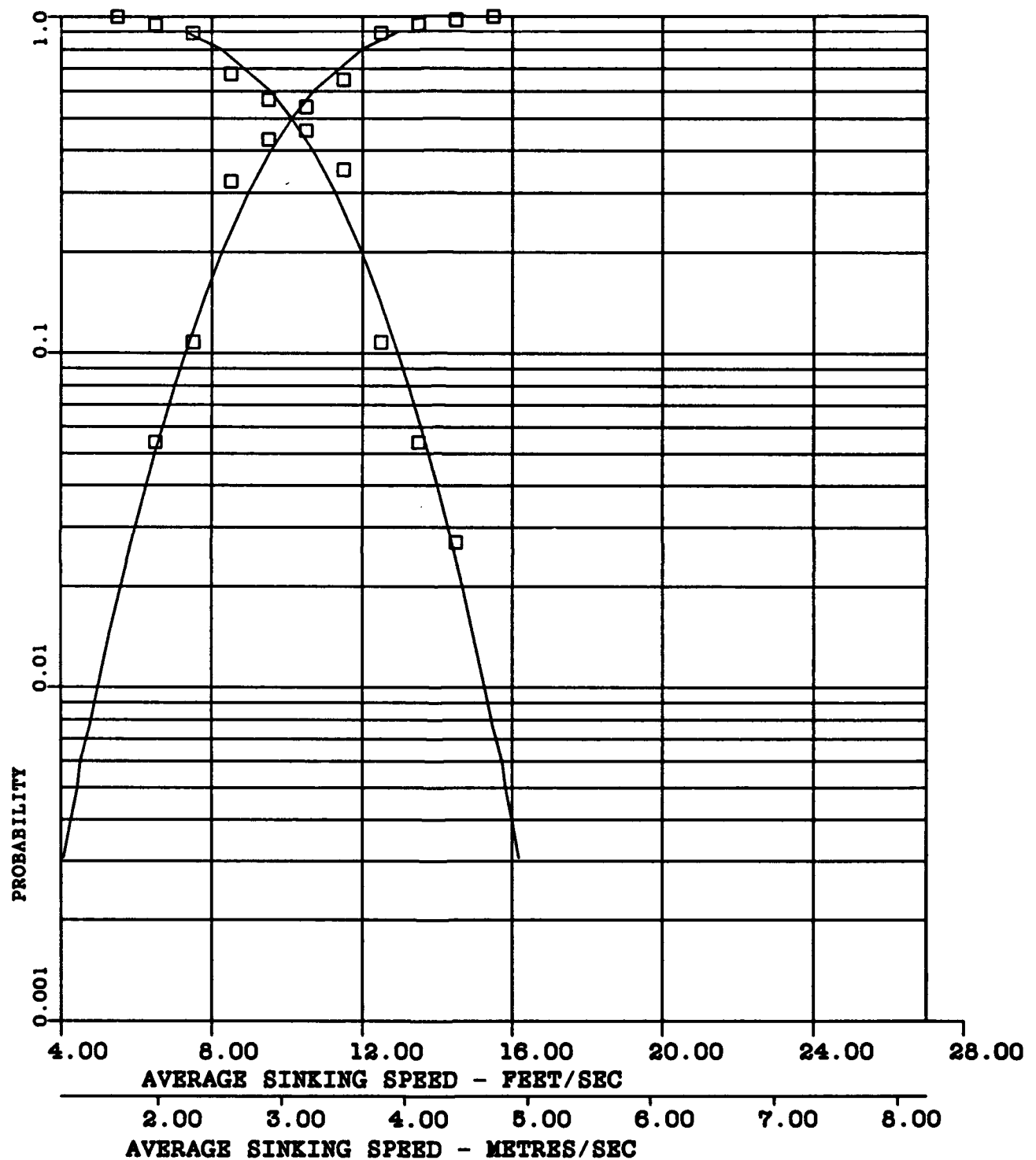


FIGURE K-12 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-3

 $\bar{X}$ -9.34 FEET/SEC (2.85 METRES/SEC)

A3-0.34

S-2.96 FEET/SEC (0.90 METRES/SEC)

A4-1.50

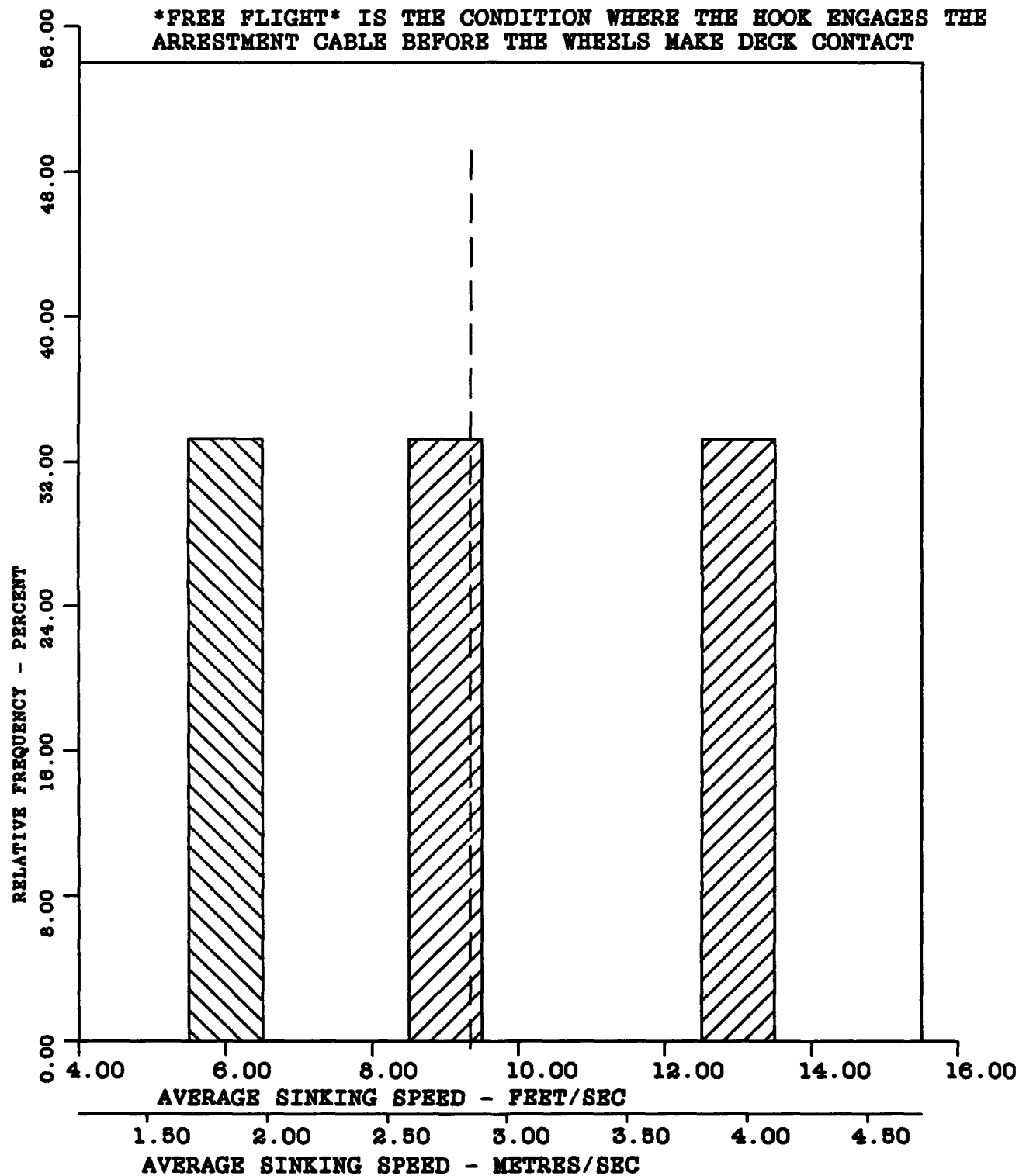


FIGURE K-13 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-3

 $\bar{X}$ -9.34 FEET/SEC (2.85 METRES/SEC)

A3-0.34

S-2.96 FEET/SEC (0.90 METRES/SEC)

A4-1.50

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

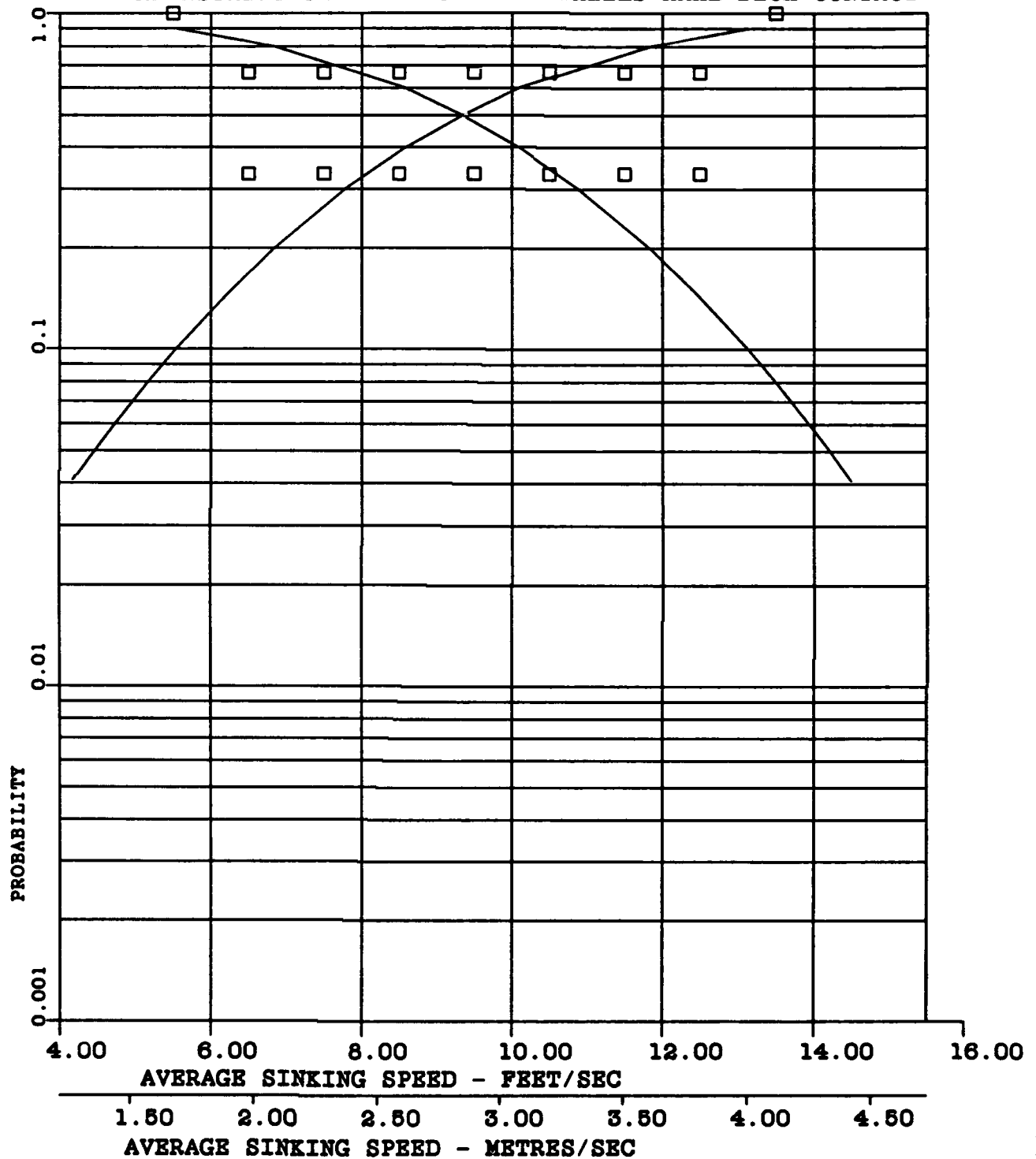


FIGURE K-14 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -1.09

A3-0.47

S-0.09

A4-2.59

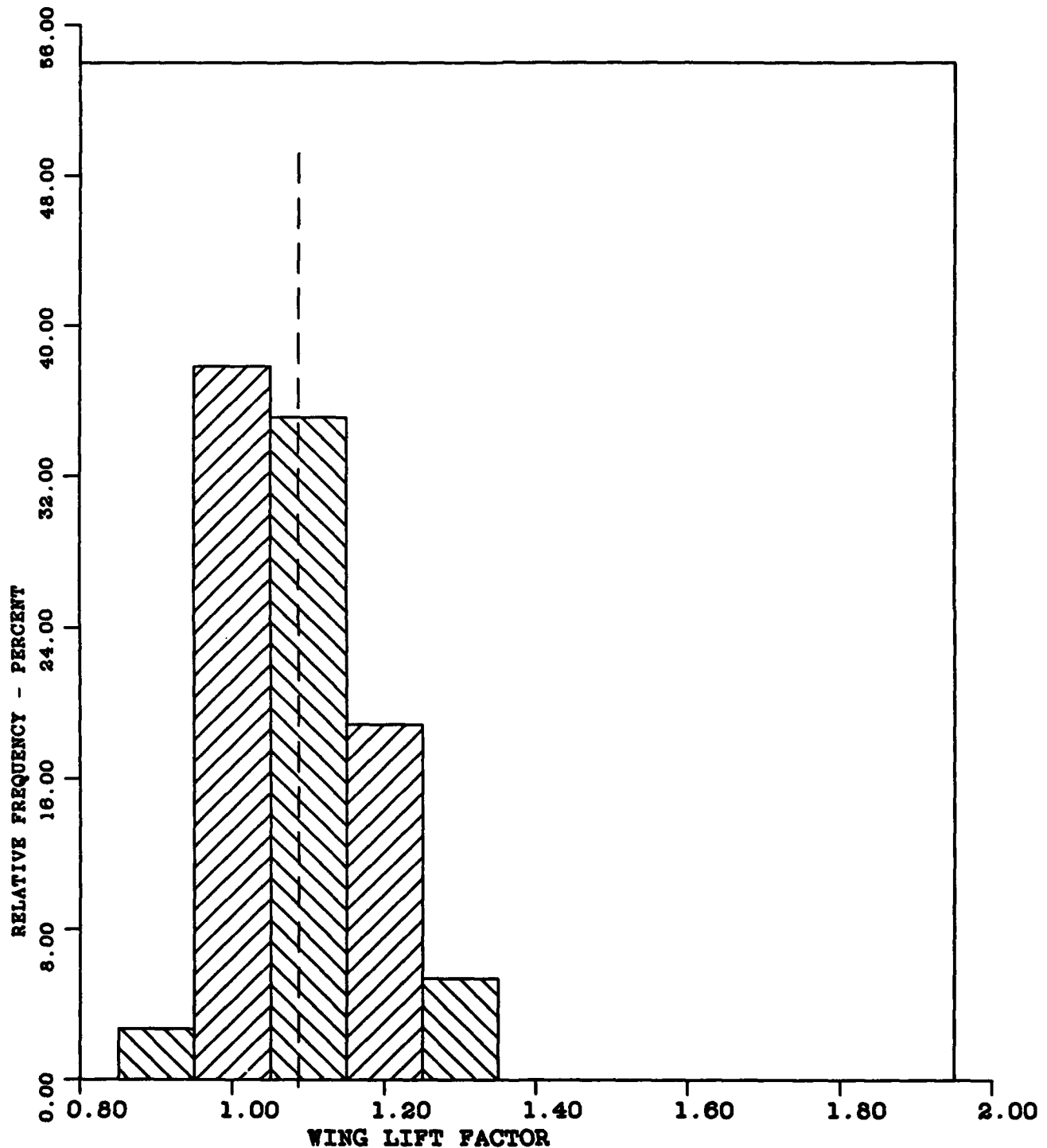


FIGURE K-15 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -1.09

A3-0.47

S-0.09

A4-2.59

CURVE FITTED - NORMAL

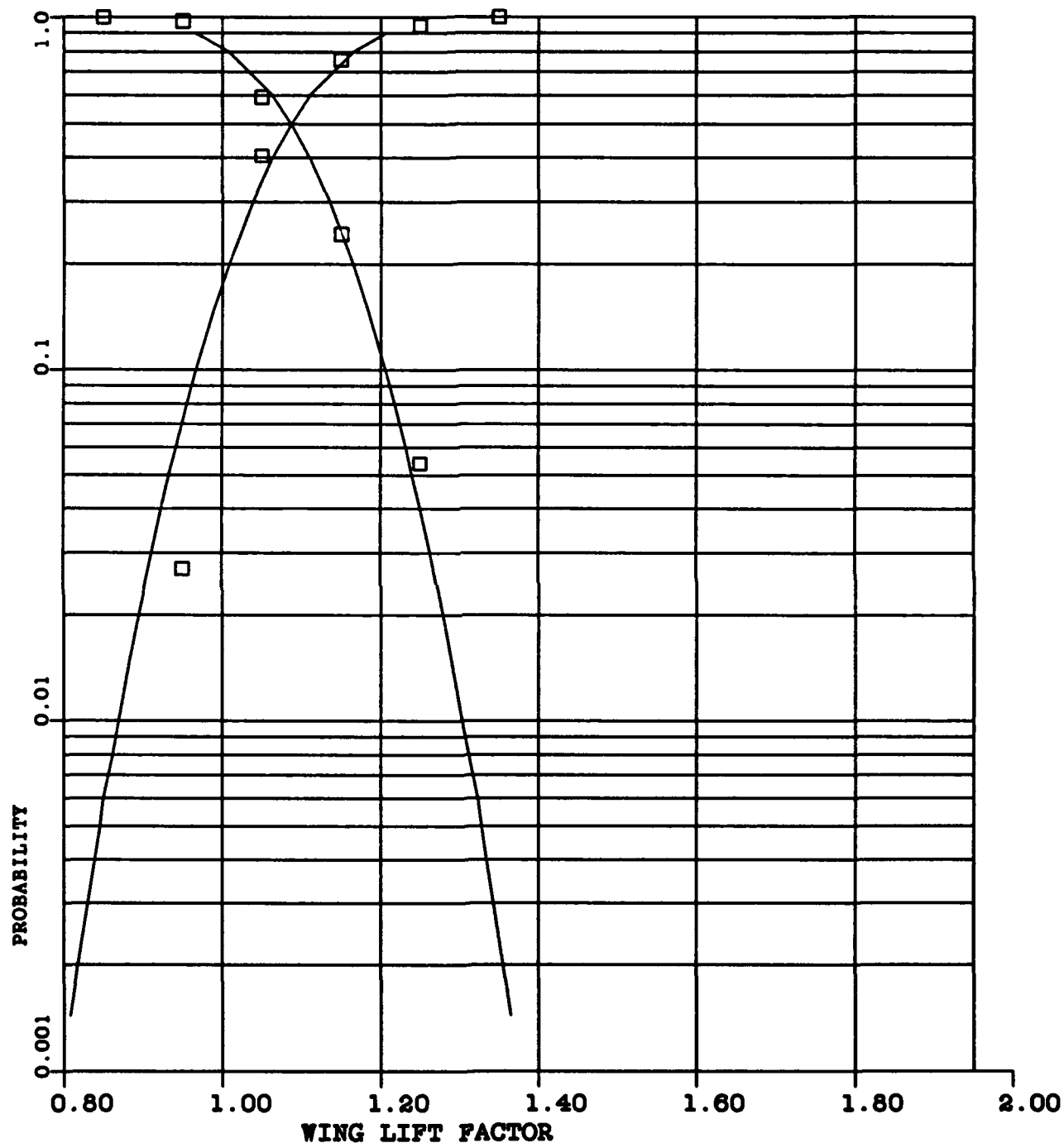


FIGURE K-16 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=3

 $\bar{X}$ =1.13

S=0.09

A3=-0.71

A4=1.50

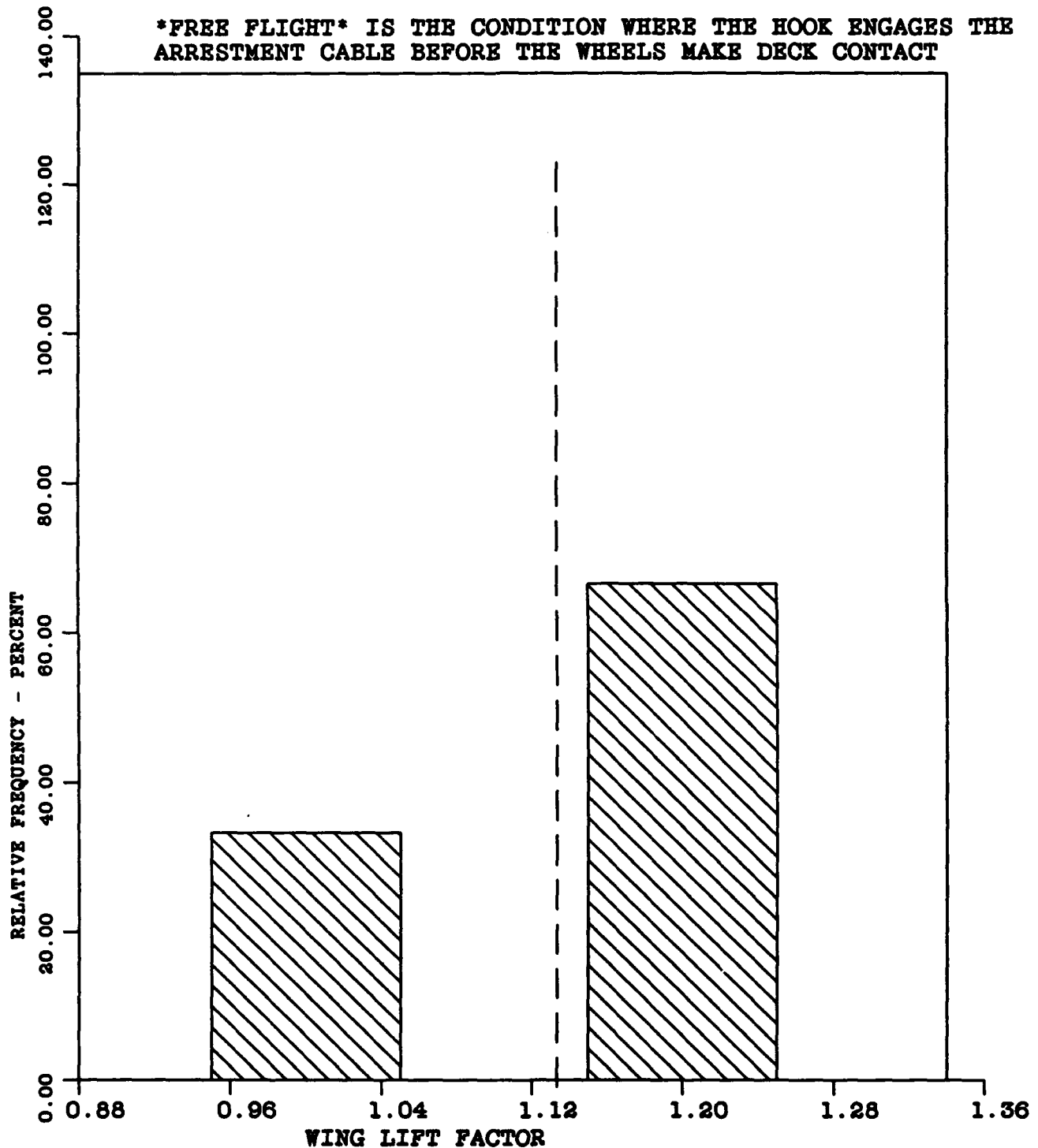


FIGURE K-17 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FREE FLIGHT



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=3

 $\bar{X}=1.13$ 

S=0.09

A3=-0.71

A4=1.50

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

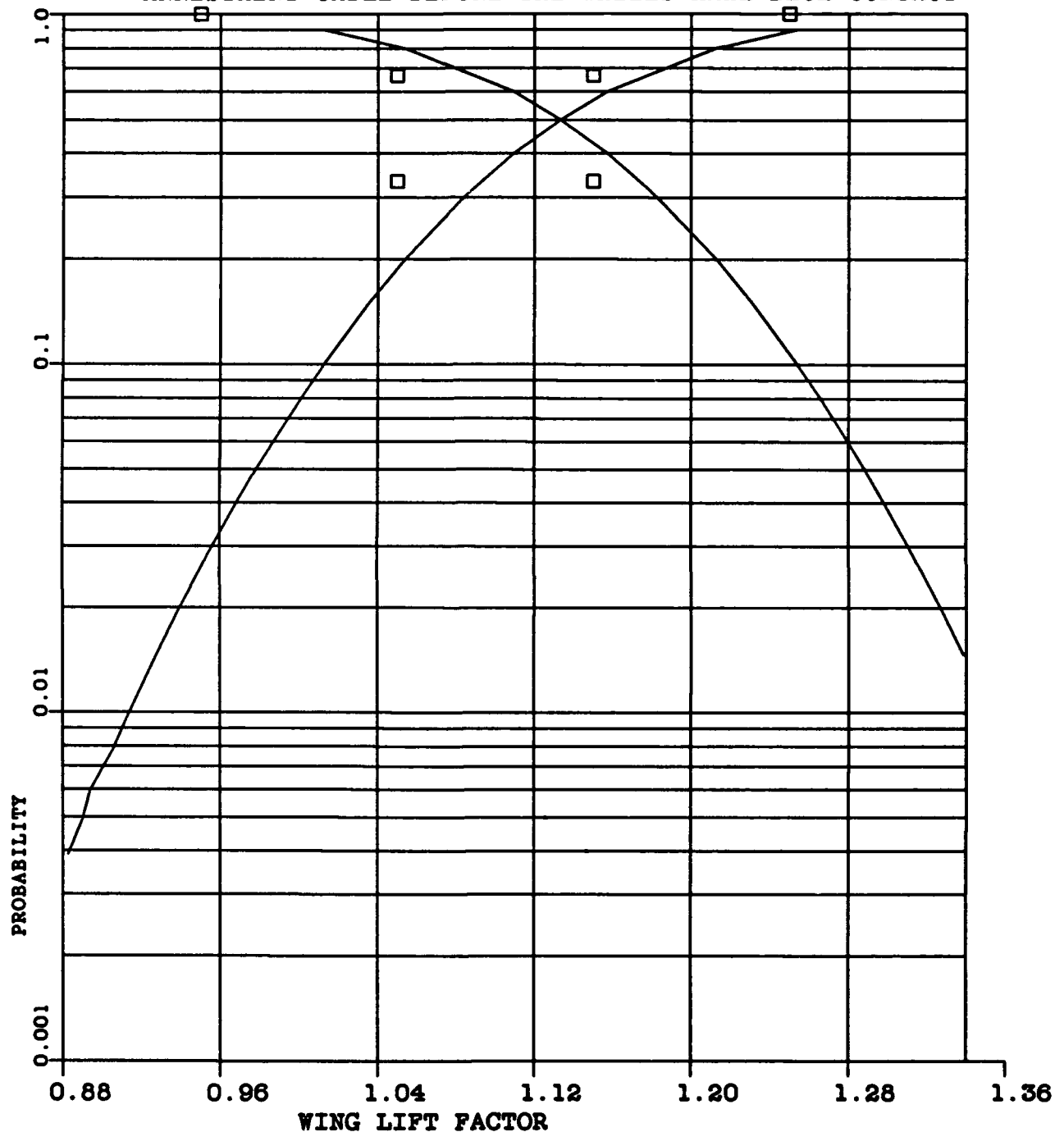


FIGURE K-18 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37  $\bar{X}$ -10.19 DEGREES (0.178 RADIANS)

A3-0.21

S-1.63 DEGREES (0.028 RADIANS)

A4-2.50

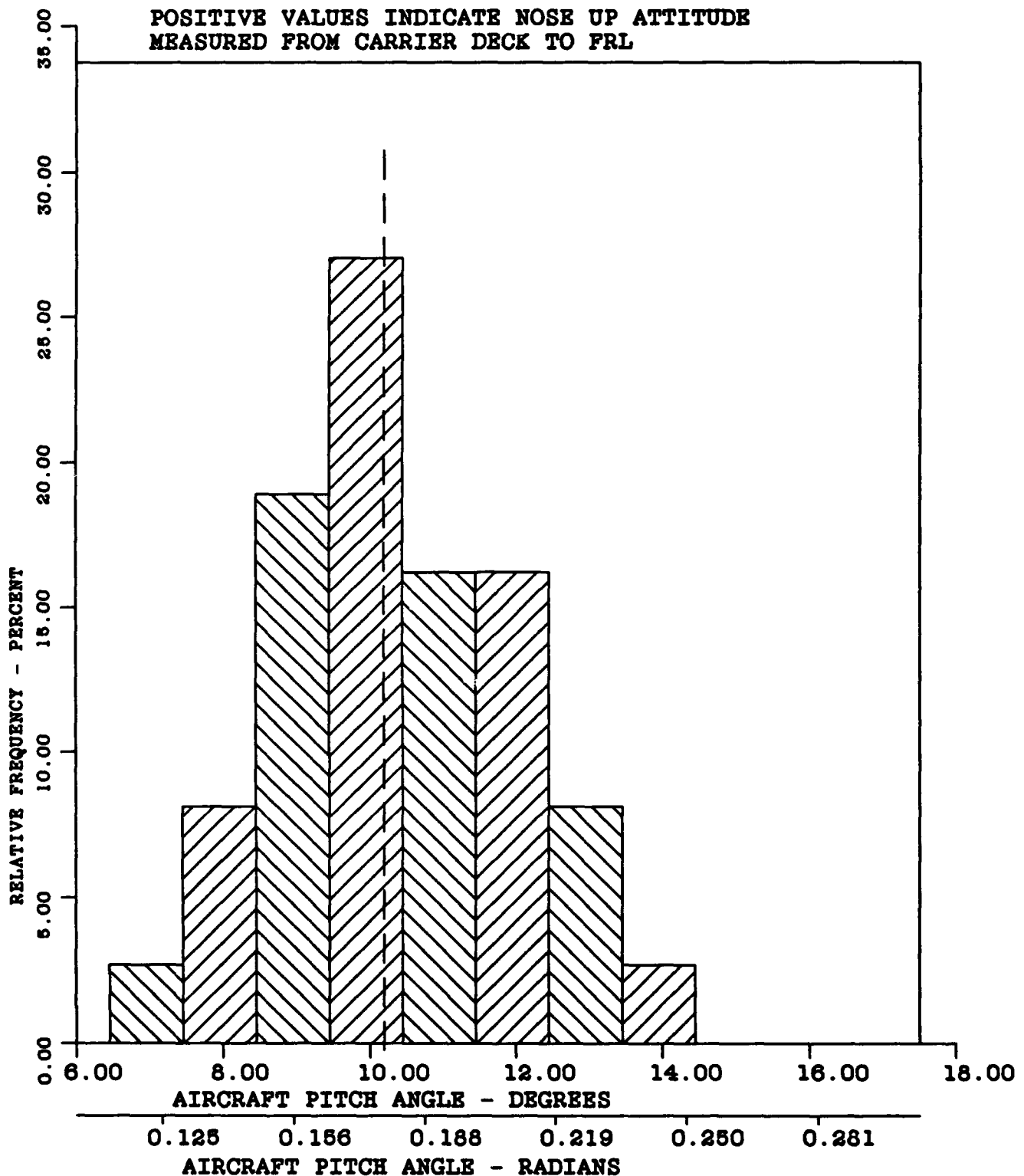


FIGURE K-19 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)  
N-37

$\bar{X}$ -10.19 DEGREES (0.178 RADIANS)

A3-0.21

S-1.63 DEGREES (0.028 RADIANS)

A4-2.50

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

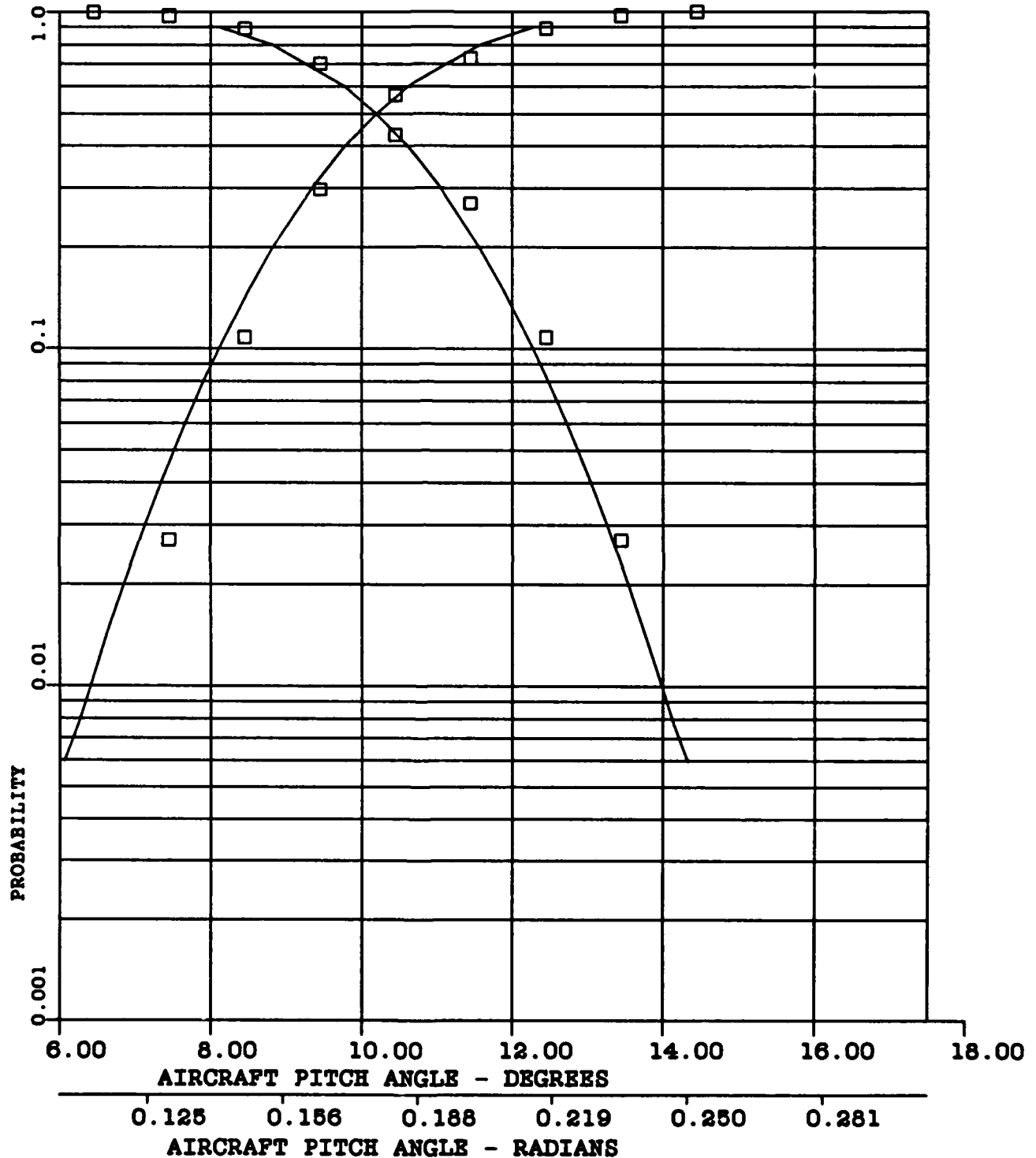


FIGURE K-20 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-3  $\bar{X}$ -11.77 DEGREES (0.205 RADIANS)

A3--0.63

S-1.05 DEGREES (0.018 RADIANS)

A4-1.50

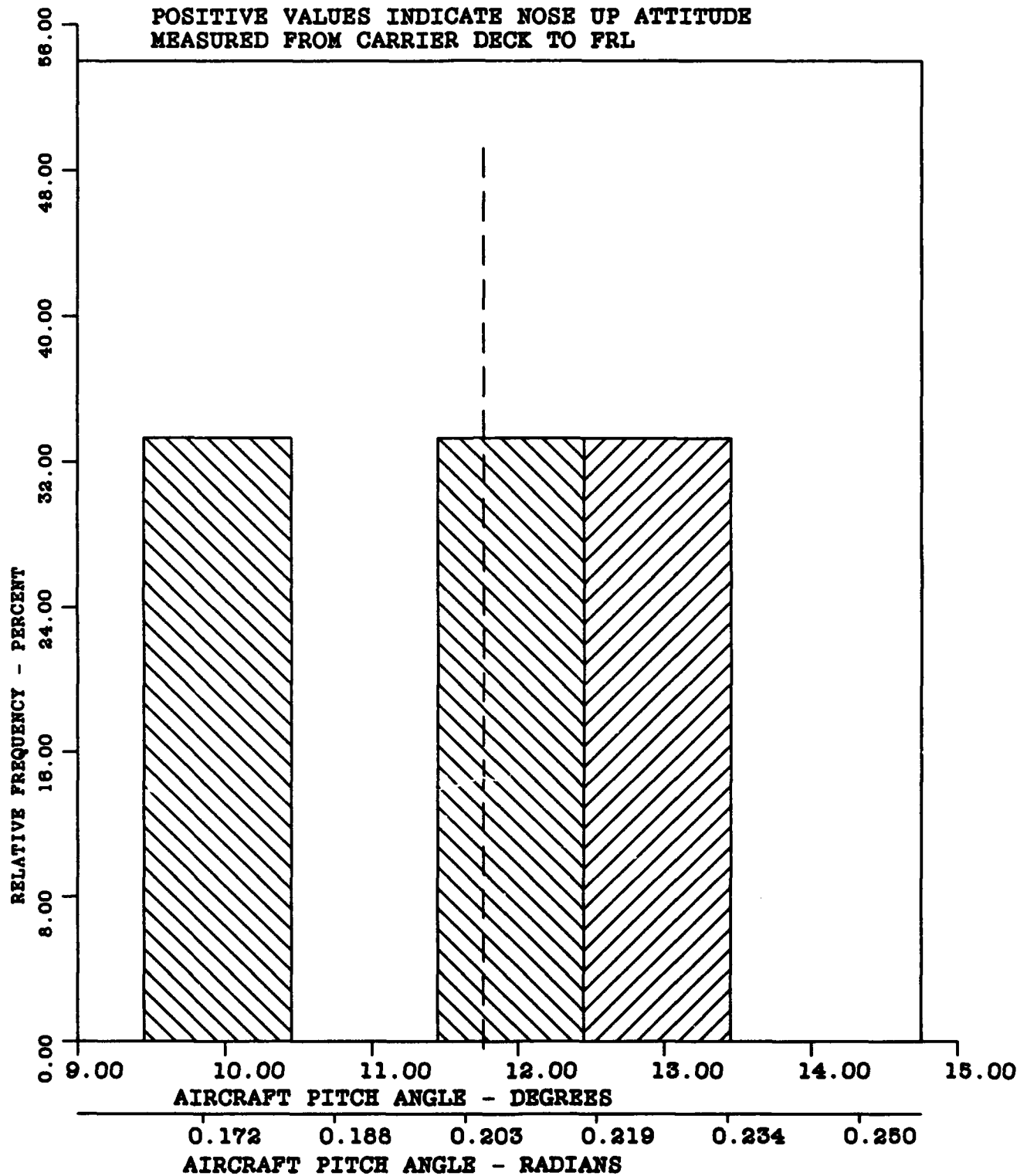


FIGURE K-21 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-3

 $\bar{X}$ -11.77 DEGREES (0.205 RADIANS)

A3--0.63

S-1.05 DEGREES (0.018 RADIANS)

A4-1.50

CURVE FITTED - NORMAL

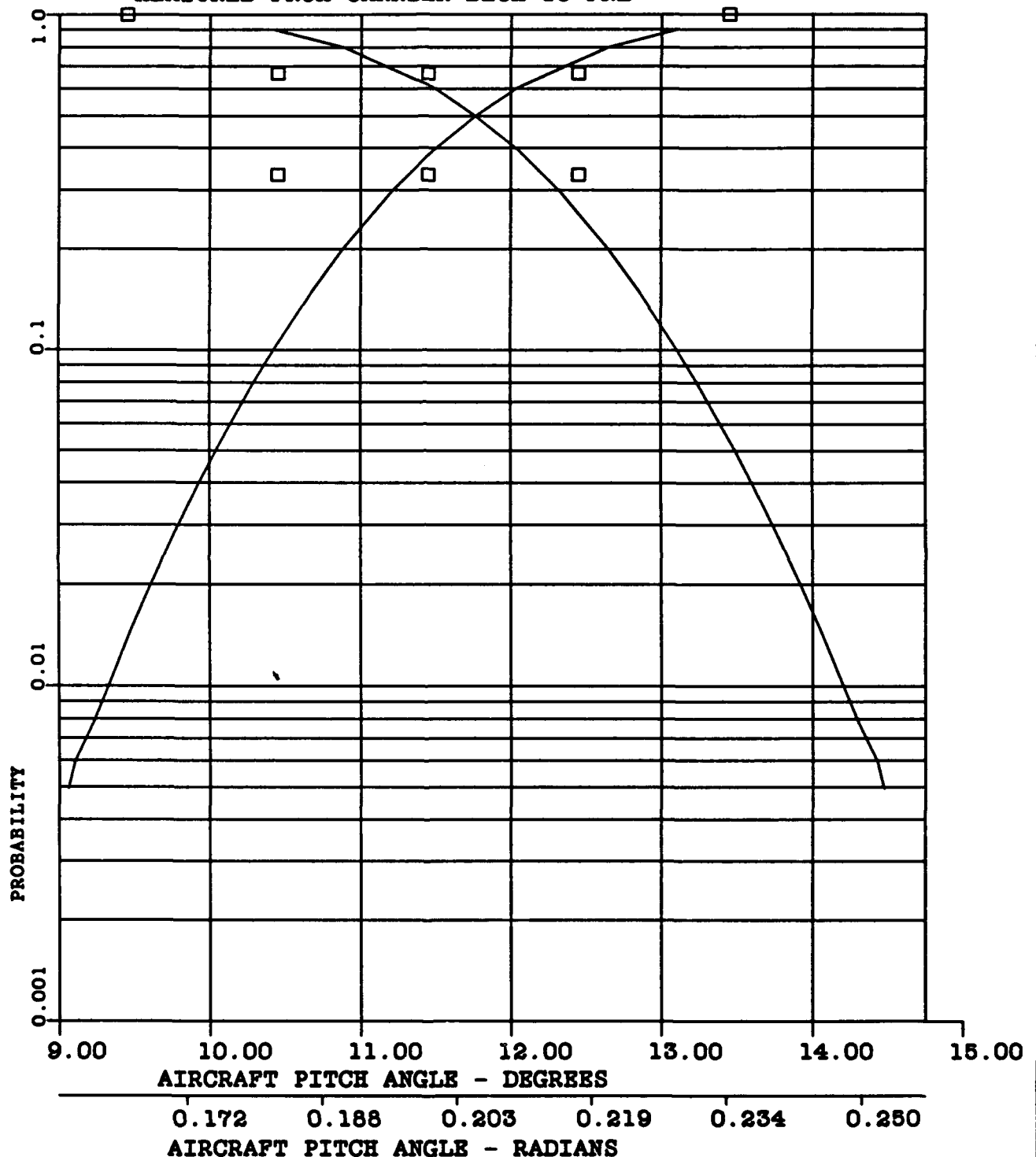
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE K-22 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -1.12 DEGREES (0.020 RADIANS)

A3--0.07

S-2.33 DEGREES (0.041 RADIANS)

A4-2.65

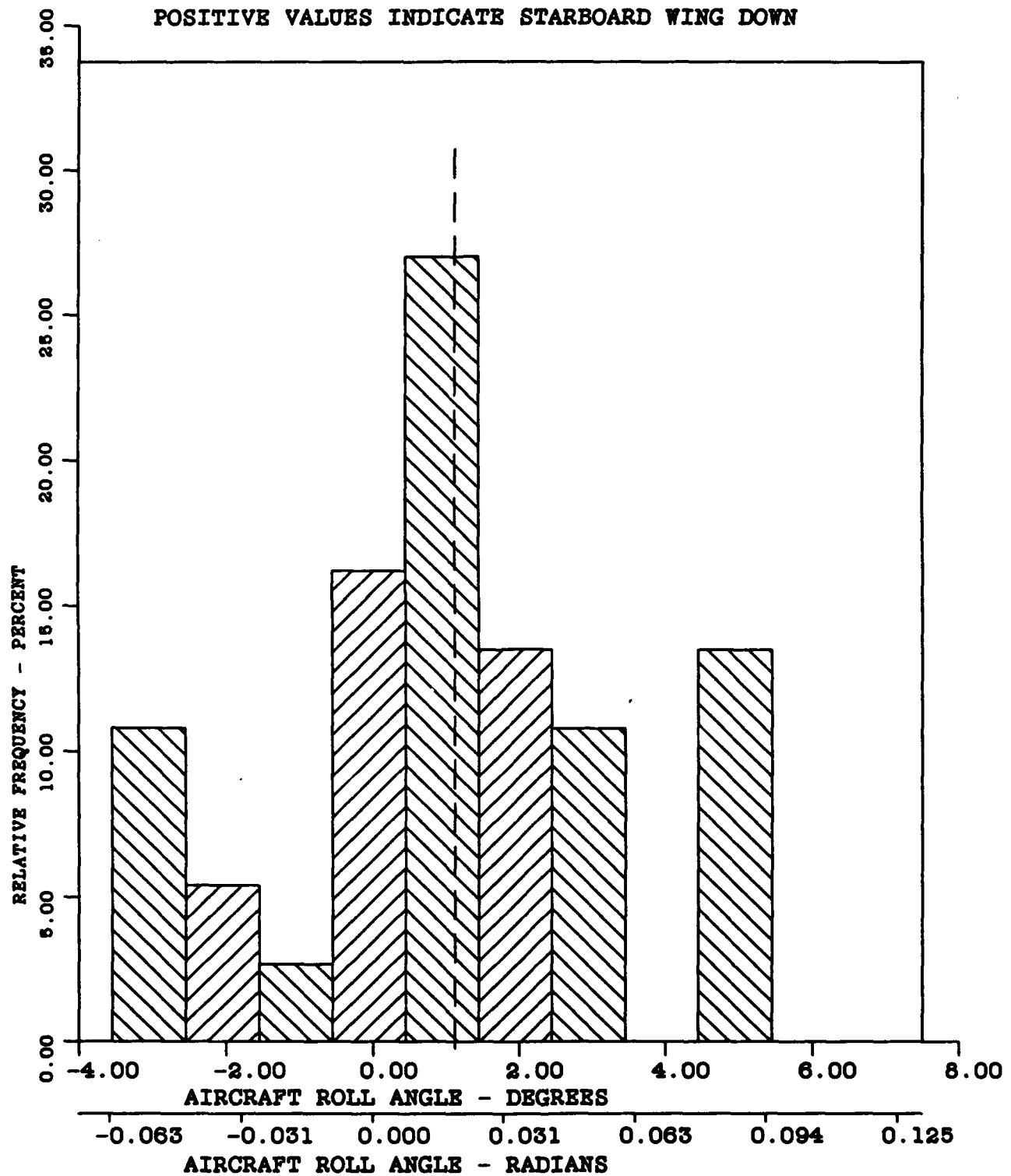


FIGURE K-23 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37  $\bar{X}$ -1.12 DEGREES (0.020 RADIANS)

A3--0.07

S-2.33 DEGREES (0.041 RADIANS)

A4-2.65

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

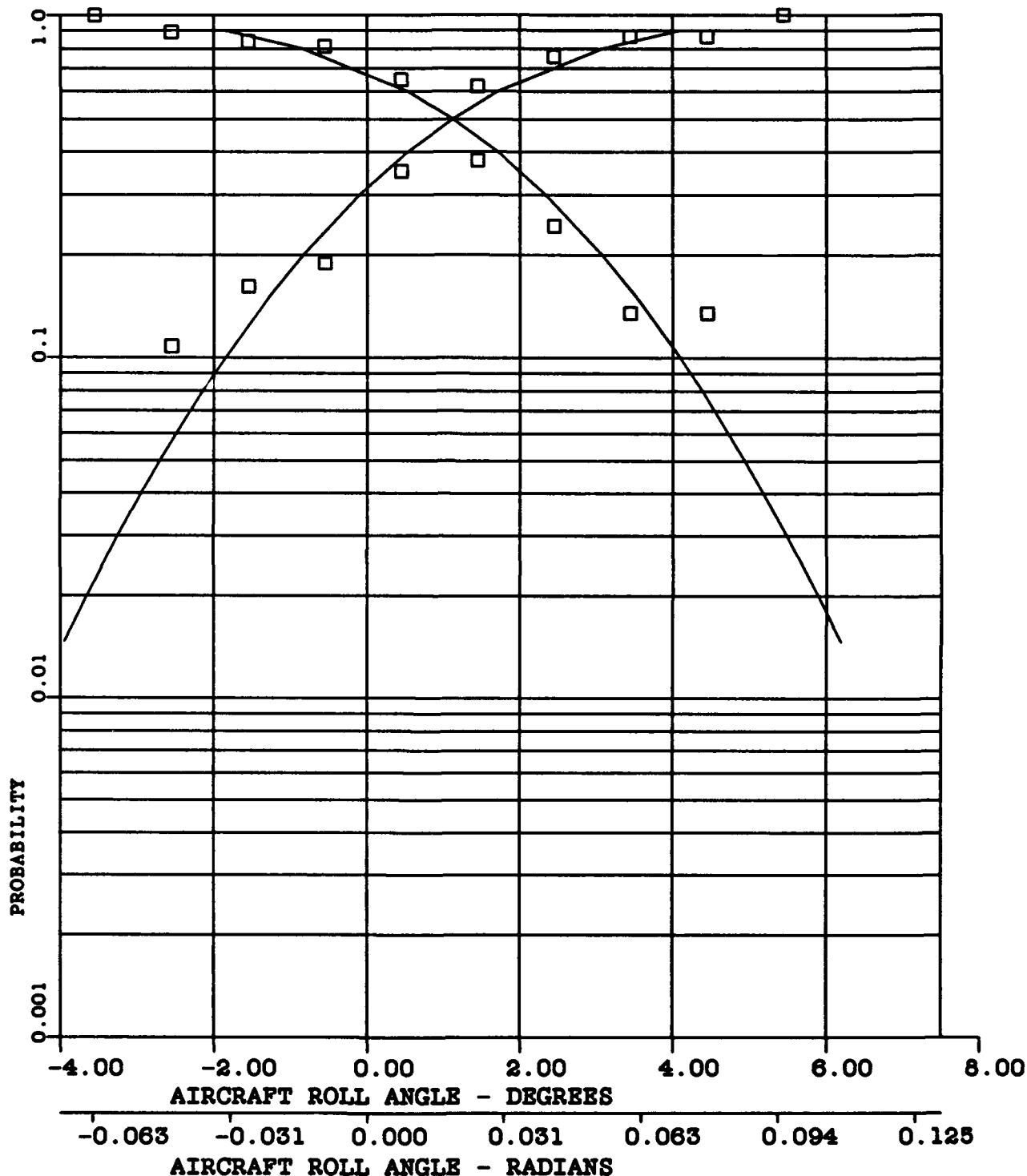


FIGURE K-24 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-3  $\bar{X}$ -1.47 DEGREES (-0.026 RADIANS)

A3-0.02

S-2.00 DEGREES (0.035 RADIANS)

A4-1.50

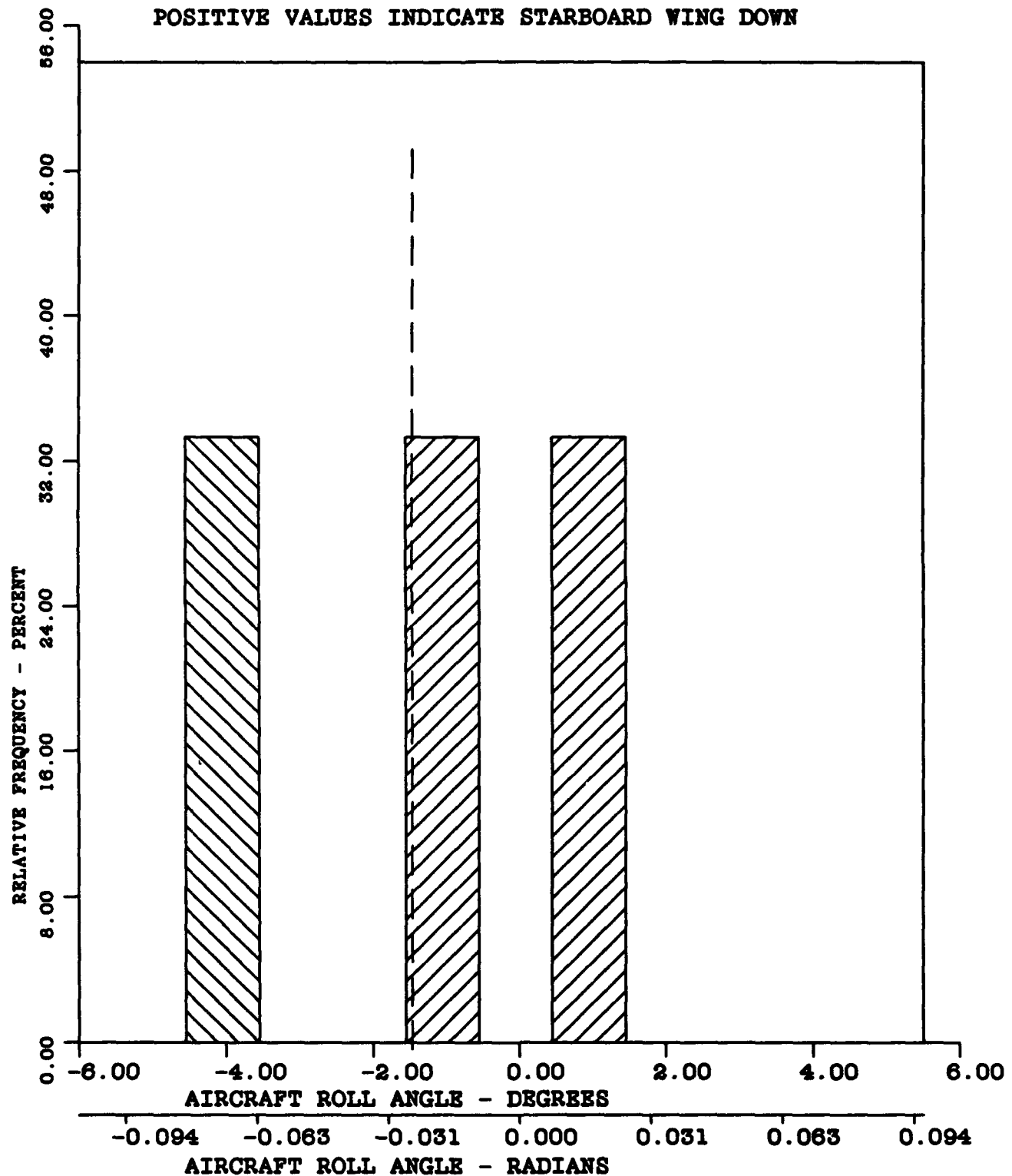


FIGURE K-25 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-3

 $\bar{X}$ -1.47 DEGREES (-0.026 RADIANS)

A3-0.02

S-2.00 DEGREES (0.035 RADIANS)

A4-1.50

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

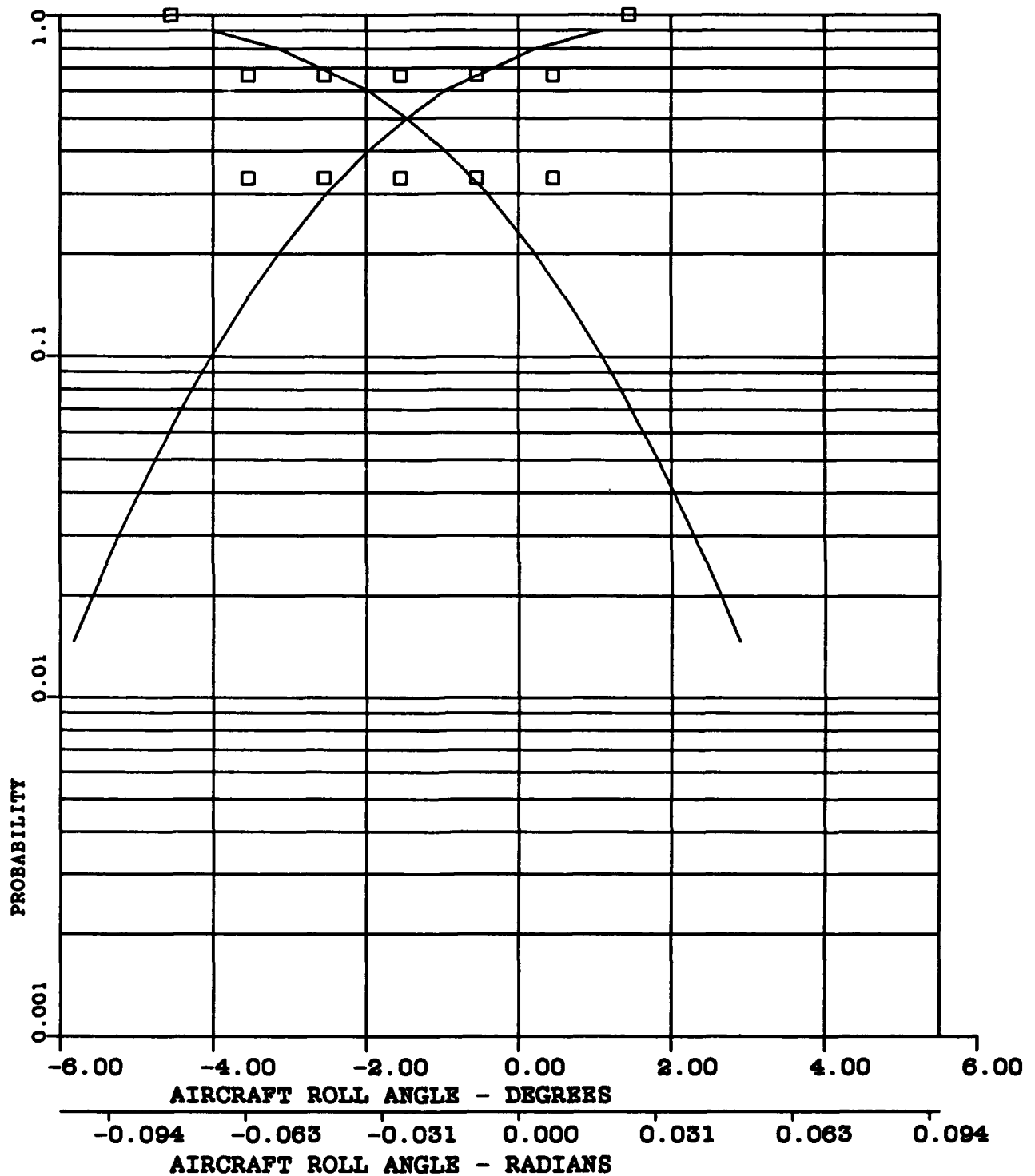


FIGURE K-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -249.46 FEET (76.04 METRES)

A3-0.08

S-39.91 FEET (12.16 METRES)

A4-2.90

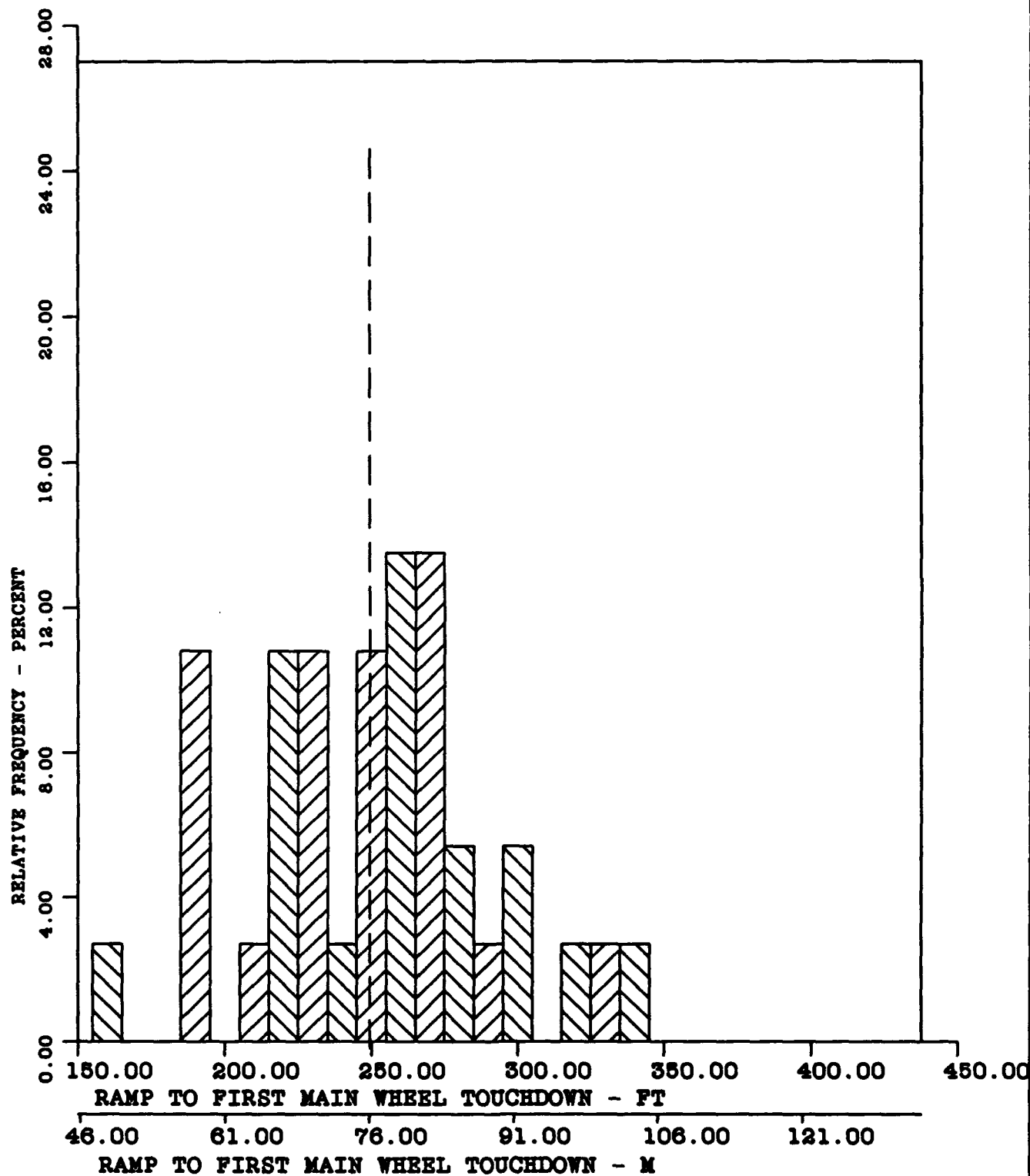


FIGURE K-27 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -249.46 FEET (76.04 METRES)

A3-0.08

S-39.91 FEET (12.16 METRES)

A4-2.90

CURVE FITTED - NORMAL

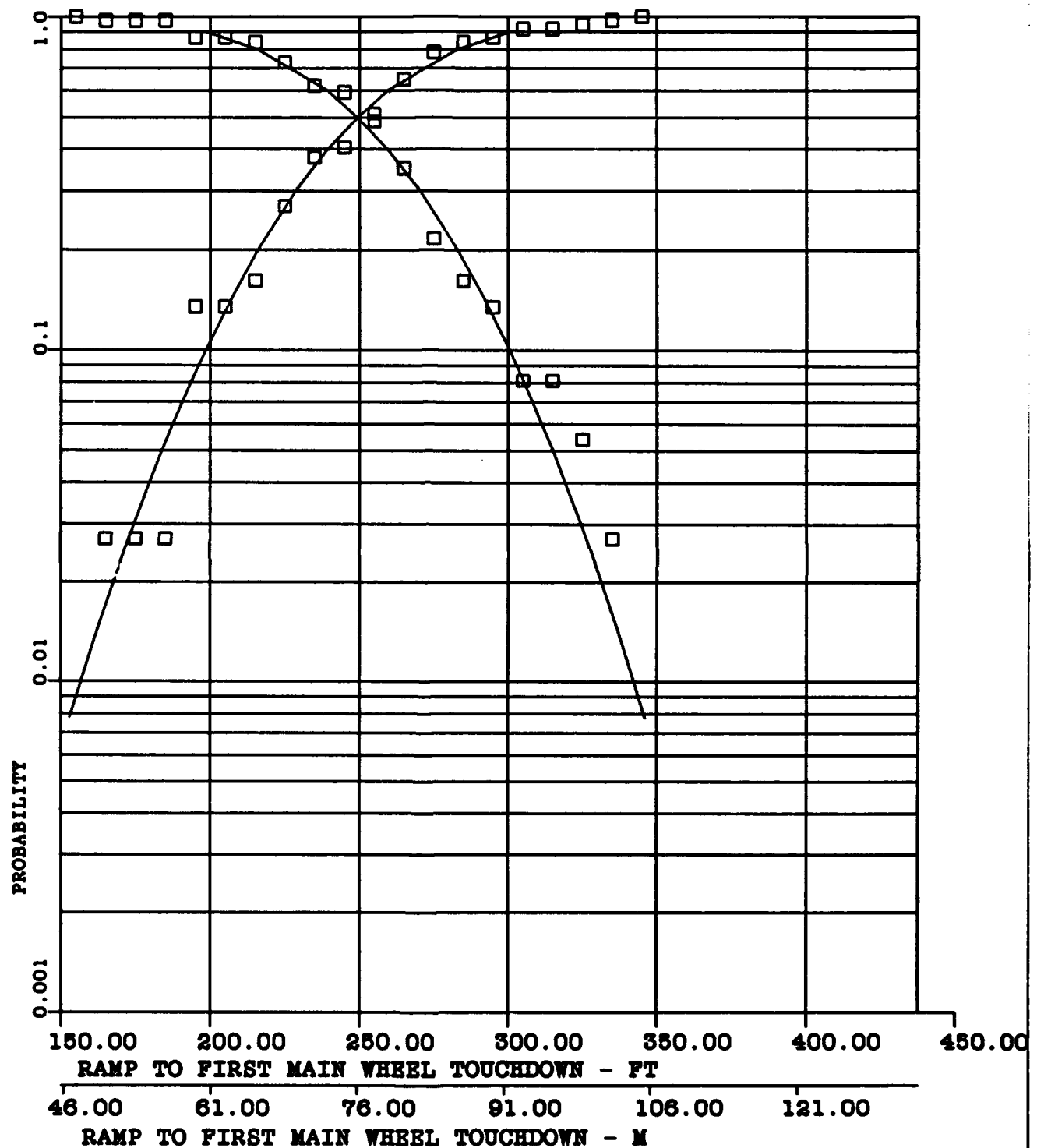


FIGURE K-28. PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL RA-6 AIRCRAFT

USS ENTERPRISE (CVN-66)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37  $\bar{X}$ -11.84 FEET (-3.61 METRES)

A3-0.46

S-3.88 FEET (1.18 METRES)

A4-3.66

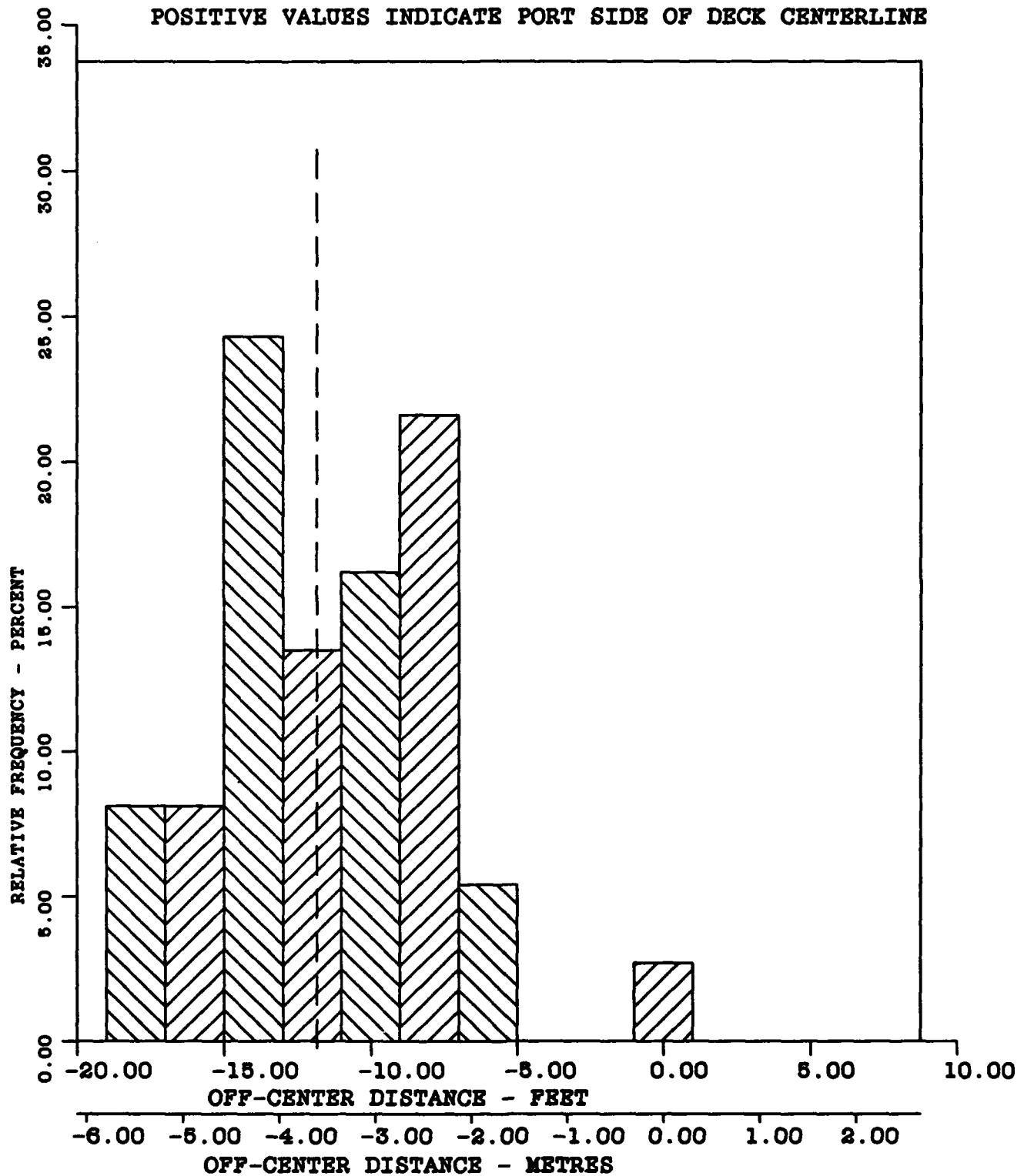


FIGURE K-29 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -11.84 FEET (-3.61 METRES)

A3-0.46

S-3.88 FEET (1.18 METRES)

A4-3.66

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

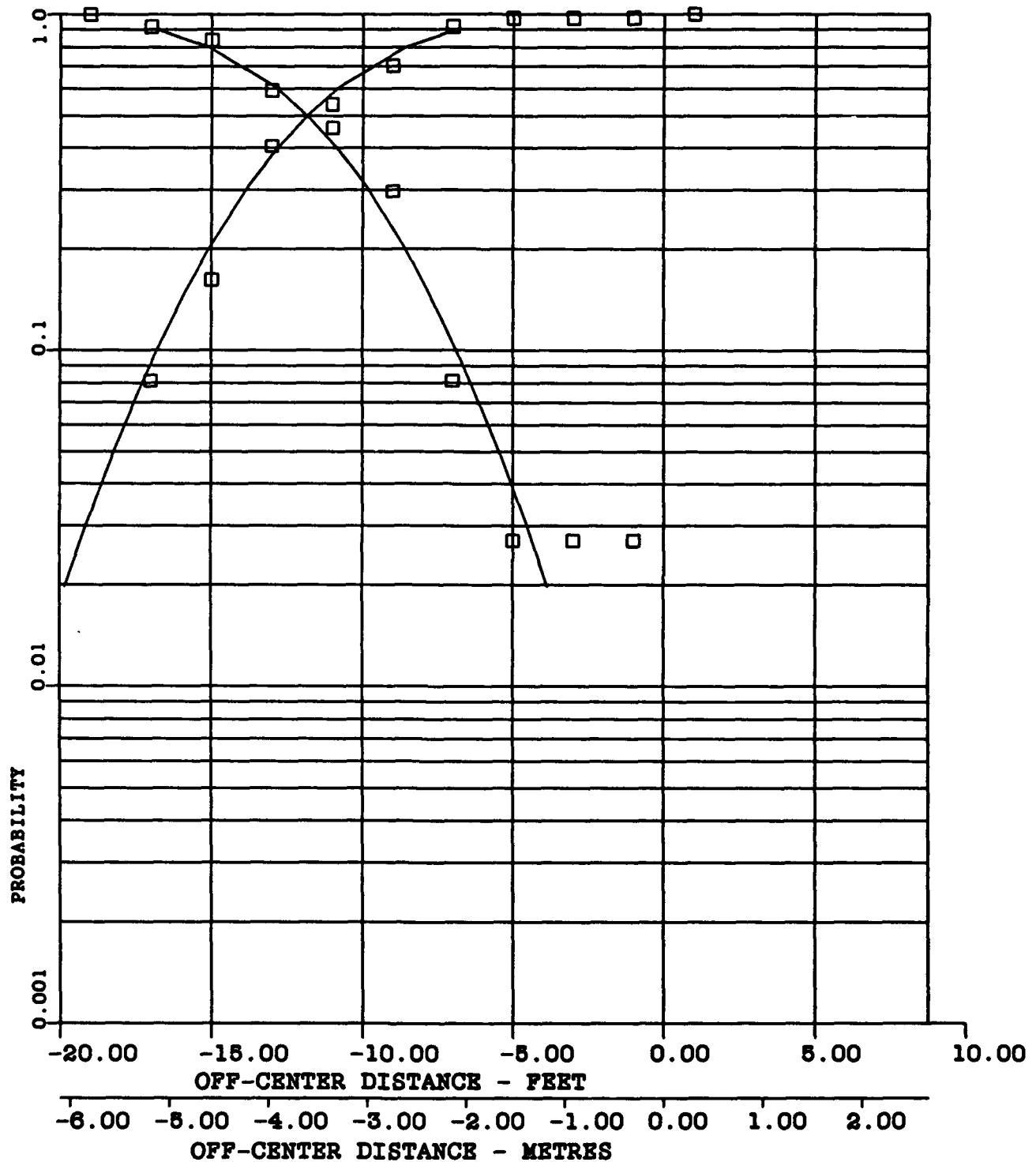


FIGURE K-30 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-27

 $\bar{X}$ -2.63

A3-0.78

S-0.82

A4-1.92

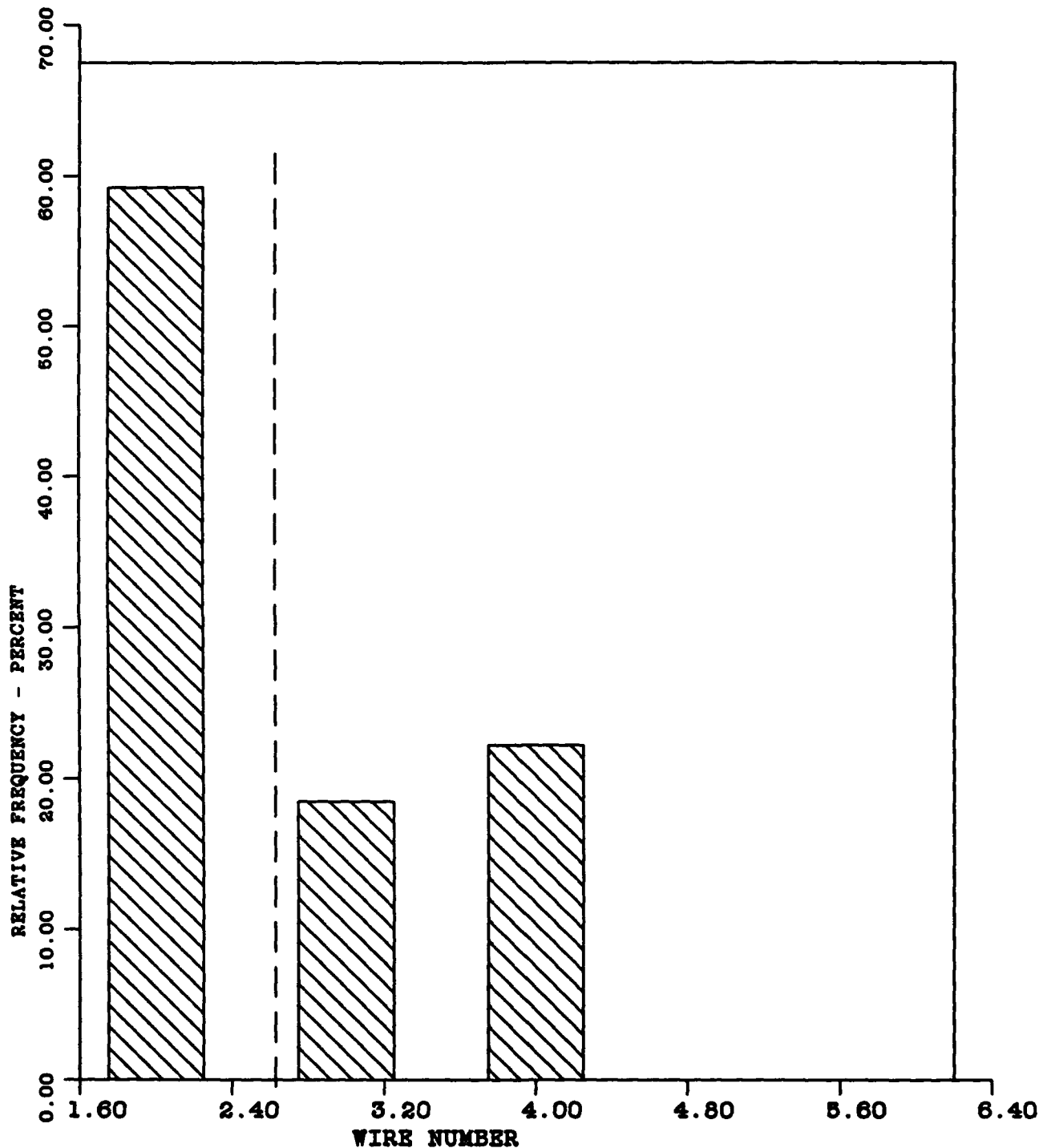


FIGURE K-31 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -2.75 DEGREES (0.048 RADIANS)

A3--0.23

S-0.69 DEGREES (0.012 RADIANS)

A4-2.23

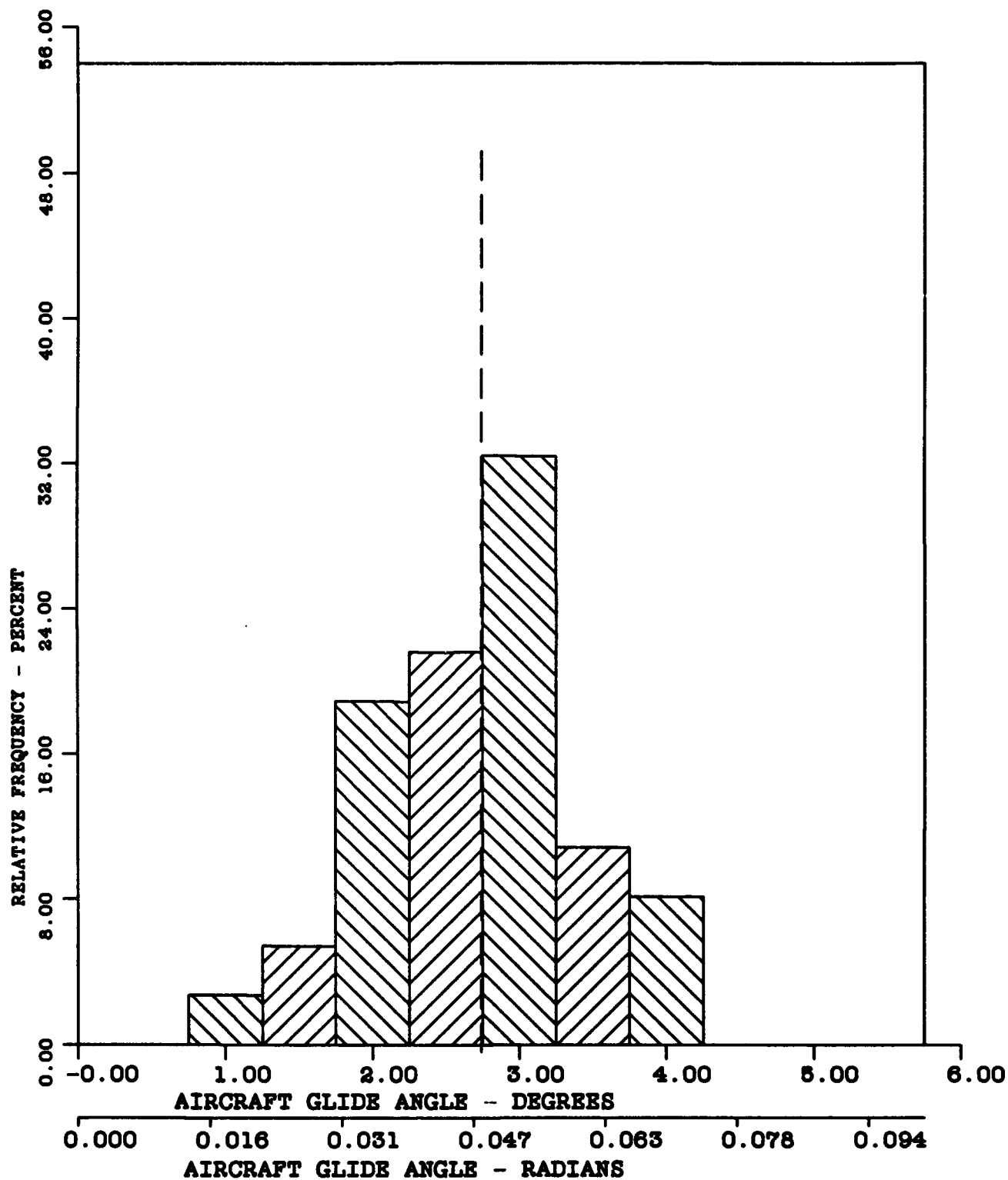


FIGURE K-32 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -108.69 KNOTS (55.91 METRES/SEC)

A3-1.77

S-6.63 KNOTS (3.41 METRES/SEC)

A4-9.45

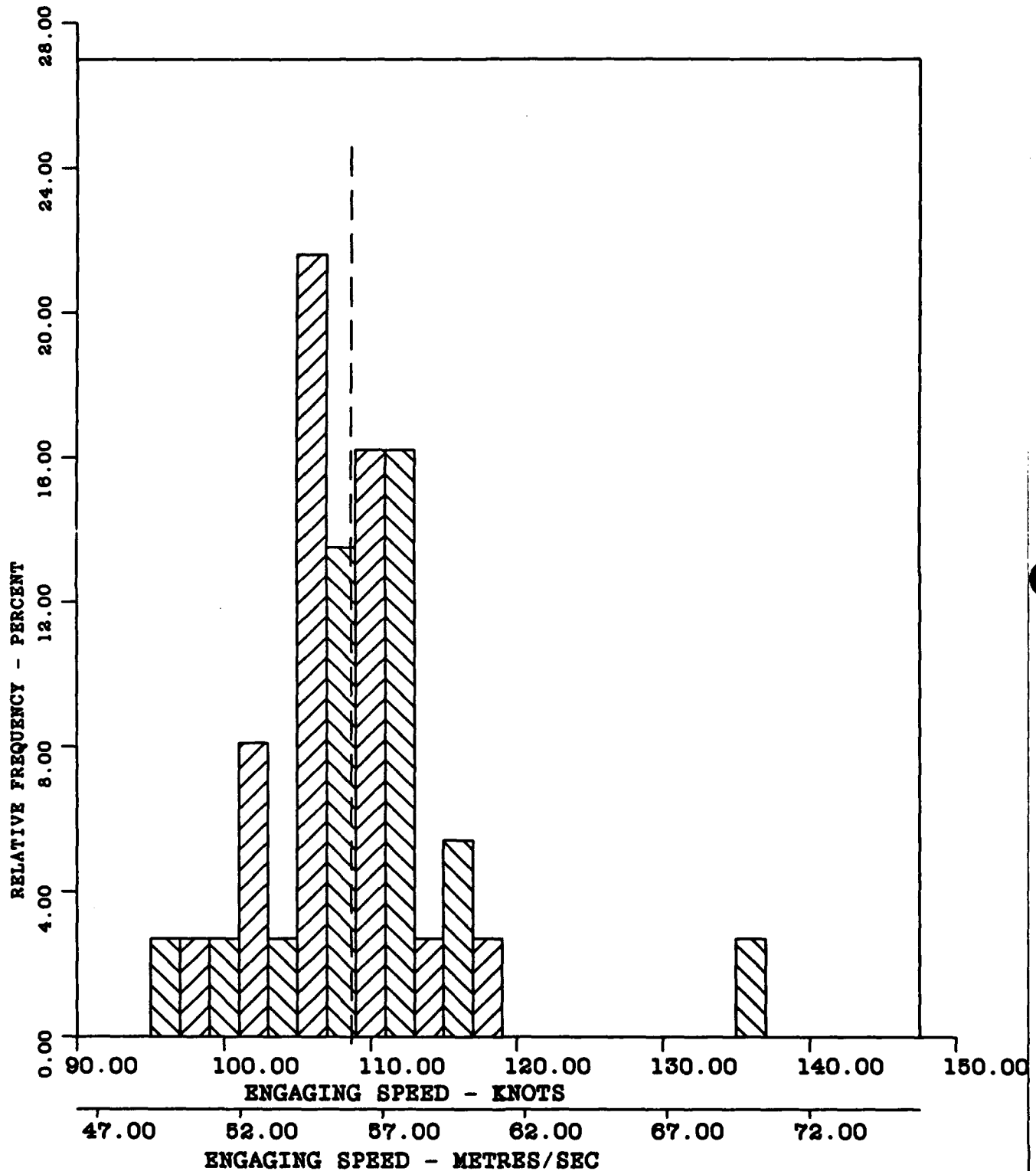


FIGURE K-33 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -108.69 KNOTS (55.91 METRES/SEC)

A3-1.77

S-6.63 KNOTS (3.41 METRES/SEC)

A4-9.45

CURVE FITTED - PEARSON TYPE III

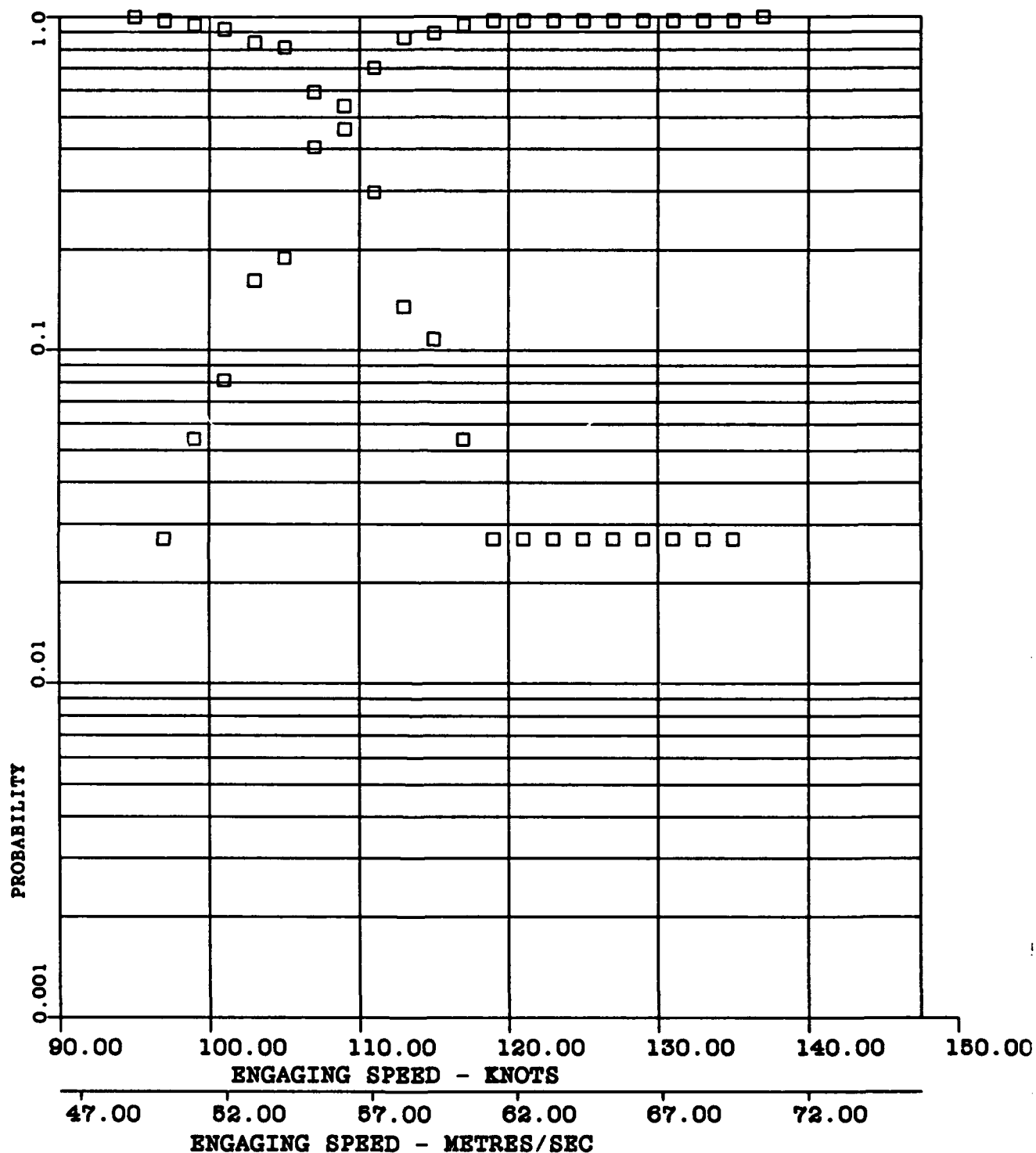


FIGURE K-34 PROBABILITY DISTRIBUTION OF ENGAGING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -120.11 KNOTS (61.78 METRES/SEC)

A3--0.62

S-2.22 KNOTS (1.14 METRES/SEC)

A4-3.42

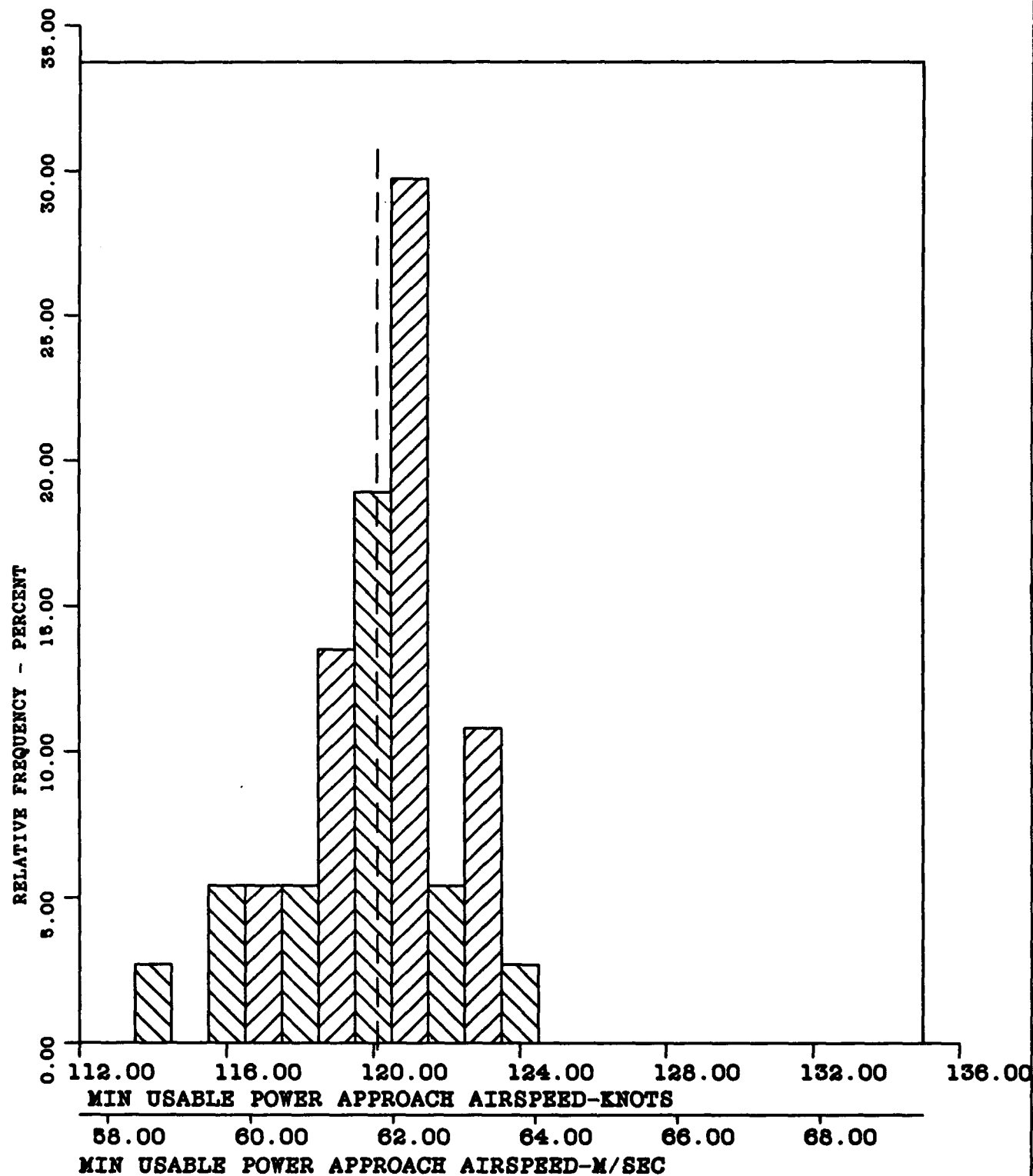


FIGURE K-35 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -1.14

S-0.07

A3-2.79

A4-13.86

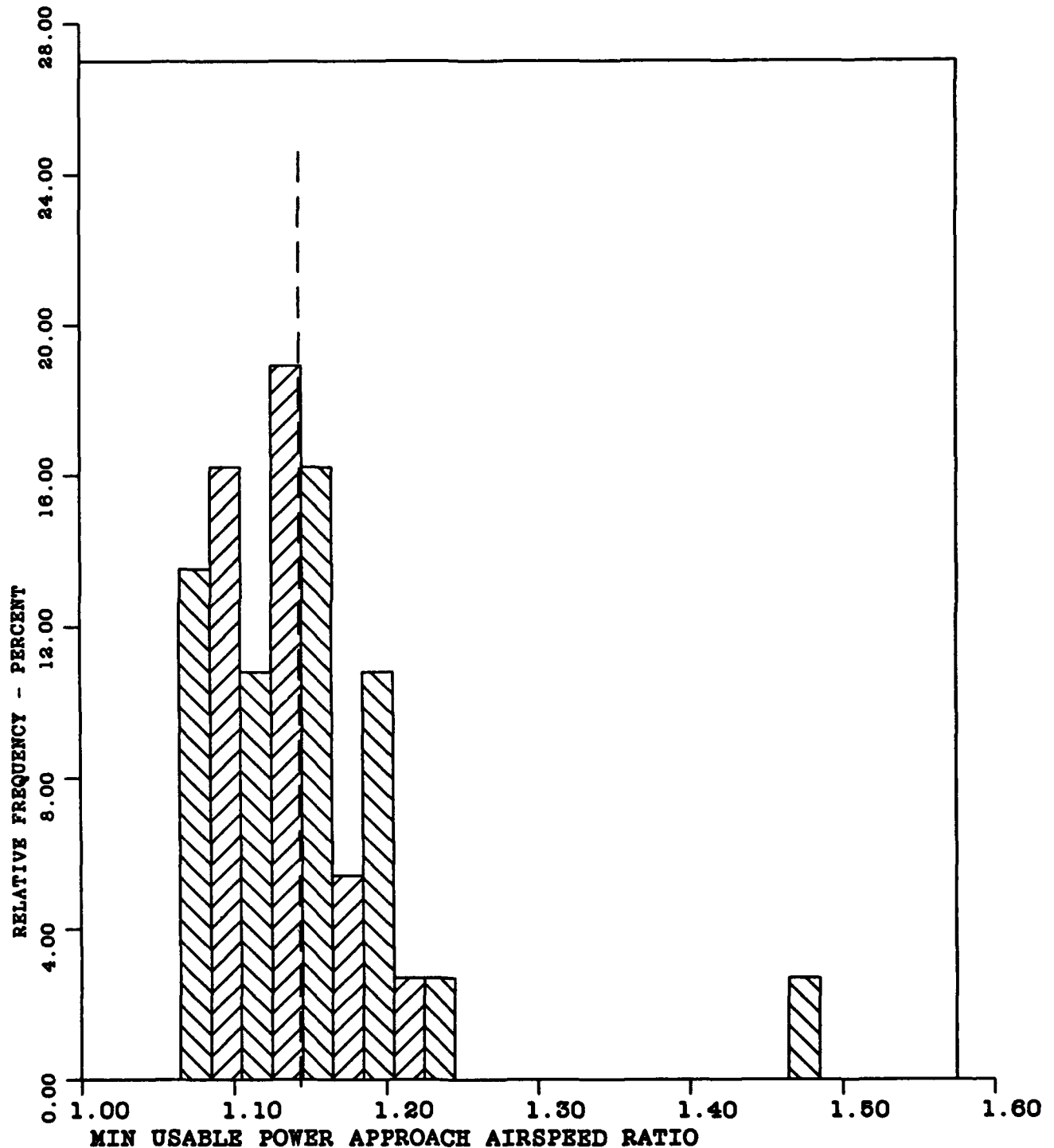


FIGURE K-36 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ =-0.06 DEGREES (-0.001 RADIANS)

A3=0.01

S=0.83 DEGREES (0.014 RADIANS)

A4=2.68

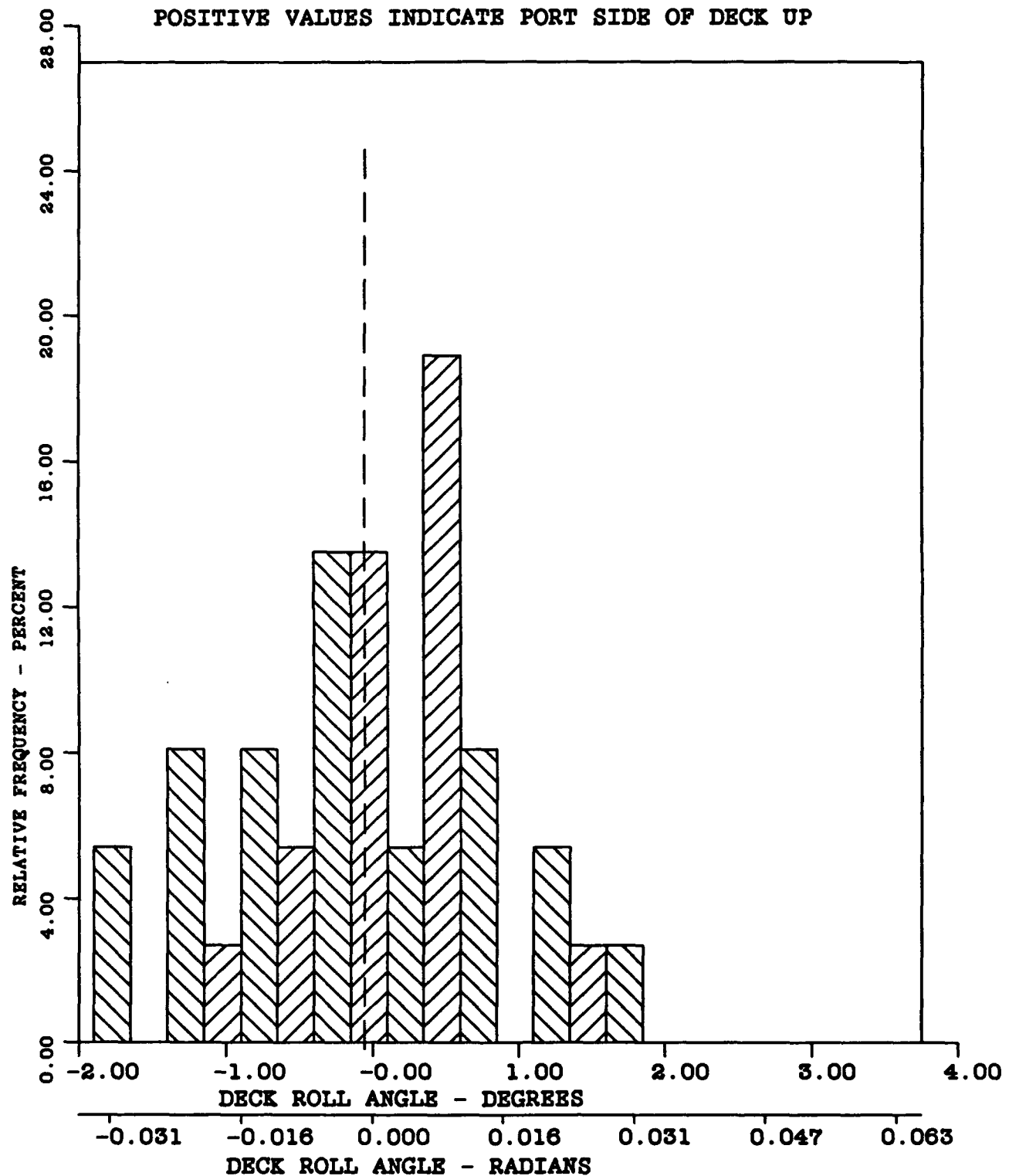


FIGURE K-37 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -0.06 DEGREES (-0.001 RADIANS)

A3-0.01

S-0.83 DEGREES (0.014 RADIANS)

A4-2.68

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

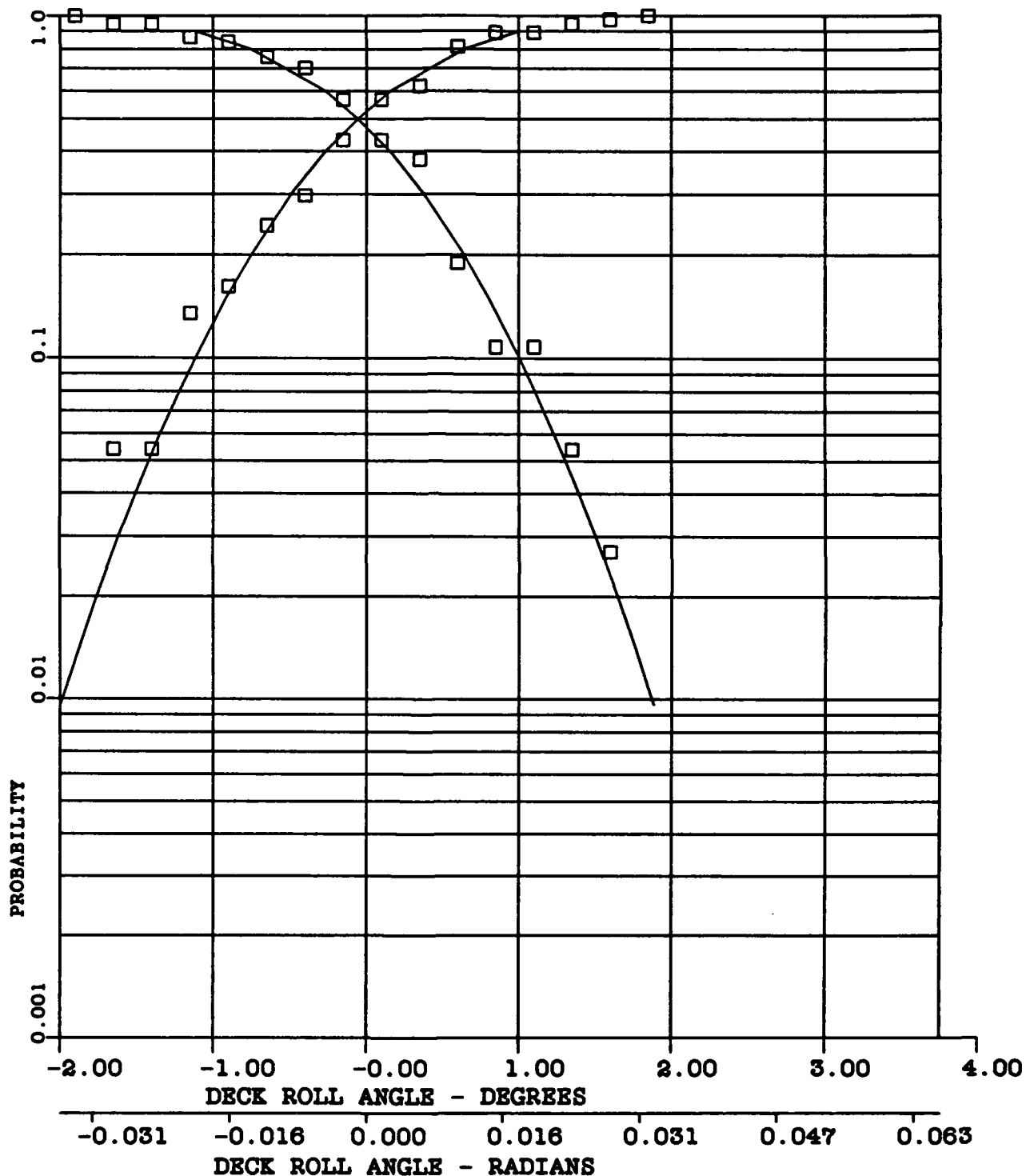


FIGURE K-38 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -0.42 DEGREES (-0.007 RADIANS)

A3-0.69

S-0.20 DEGREES (0.003 RADIANS)

A4-4.23

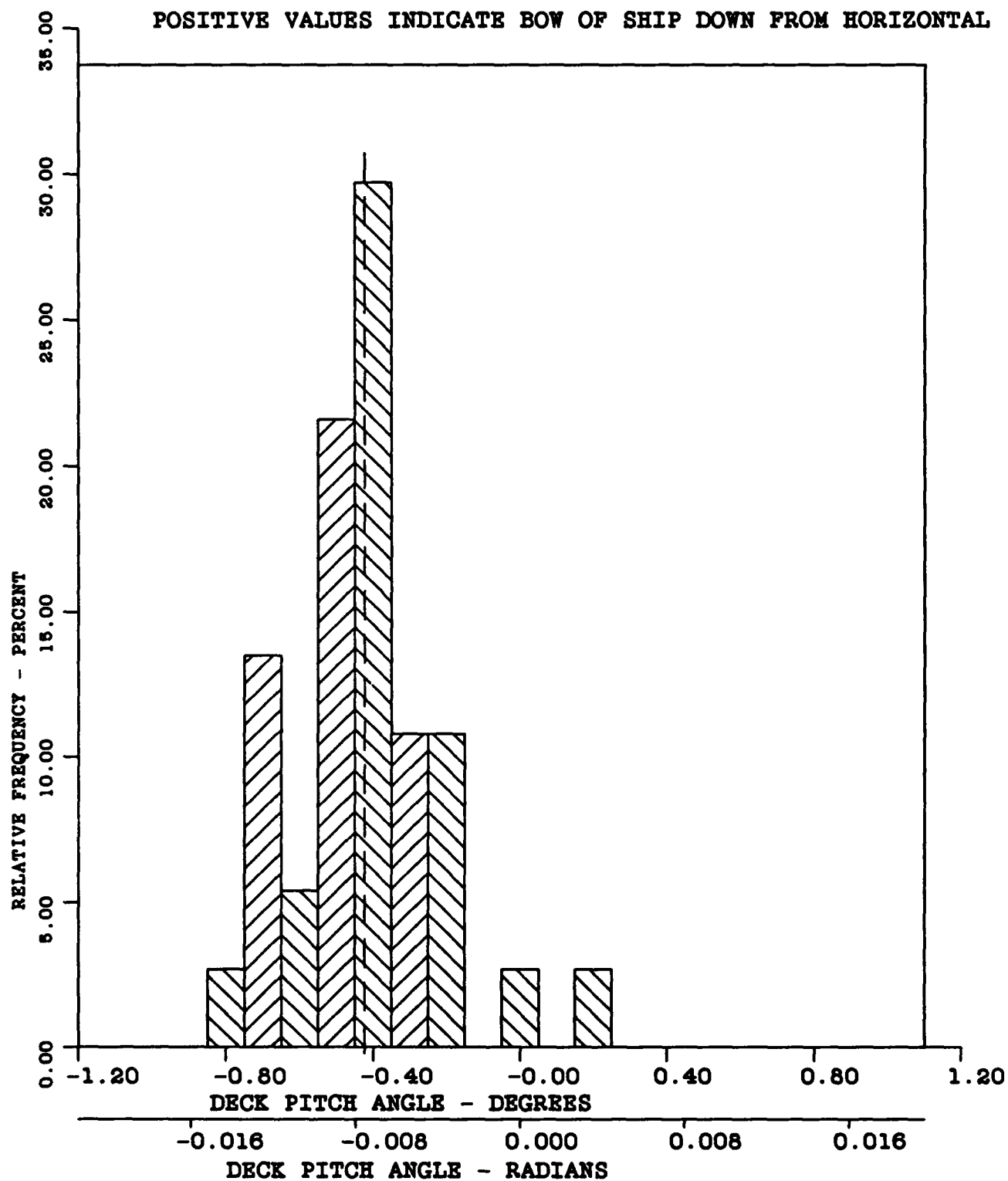


FIGURE K-39 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X} = -0.42$  DEGREES ( $-0.007$  RADIANS)

A3-0.69

S-0.20 DEGREES (0.003 RADIANS)

A4-4.23

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

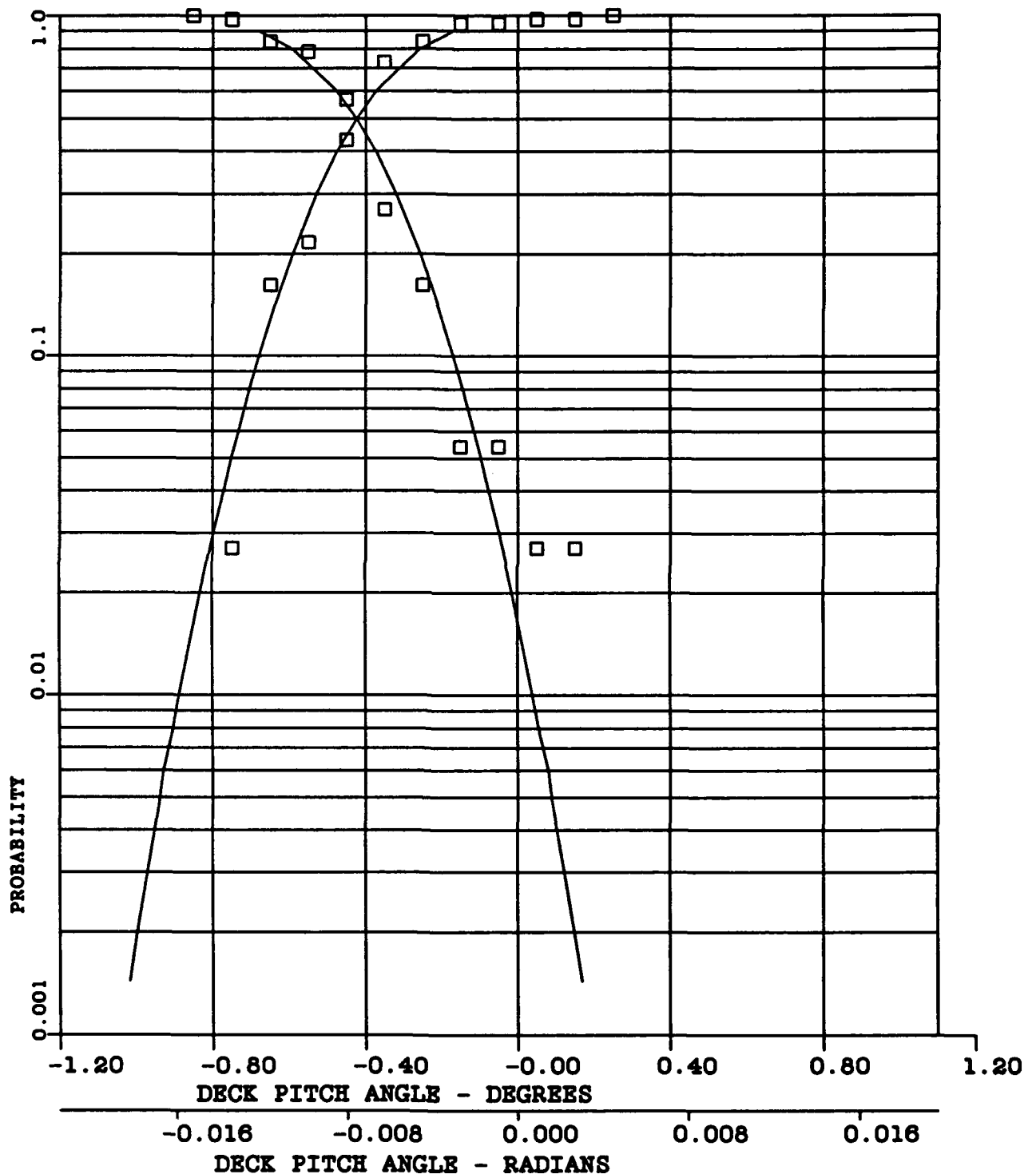


FIGURE K-40 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -40086.58 POUNDS (18183.27 KILOGRAMS)

A3--0.57

S-1475.96 POUNDS (669.50 KILOGRAMS)

A4-3.32

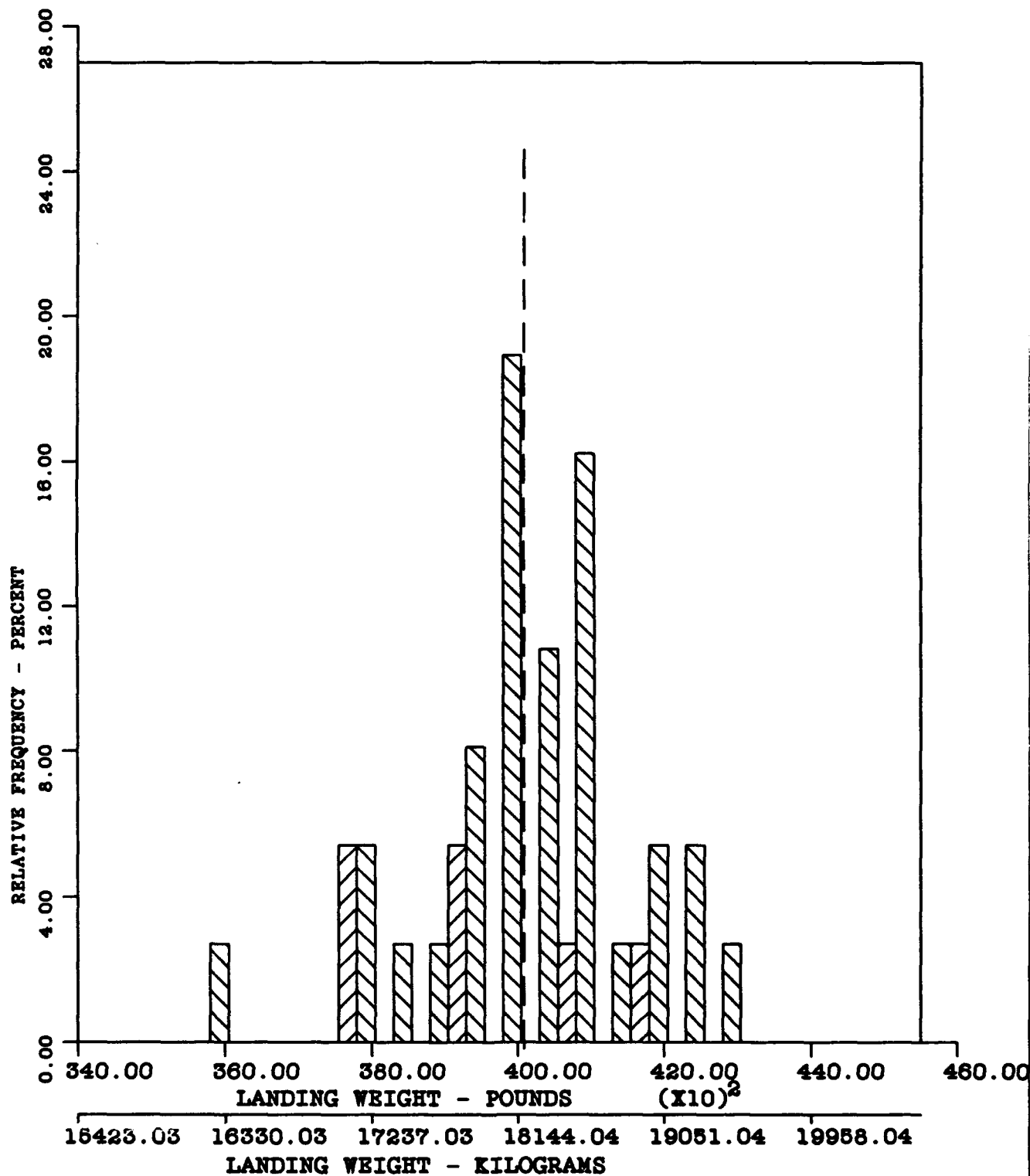


FIGURE K-41 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT



MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (0.061 RADIANS)

N-37  $\bar{X}$ -2.44 DEG/SEC (0.043 RAD/SEC)

A3-0.71

S-3.20 DEG/SEC (0.056 RAD/SEC)

A4-2.70

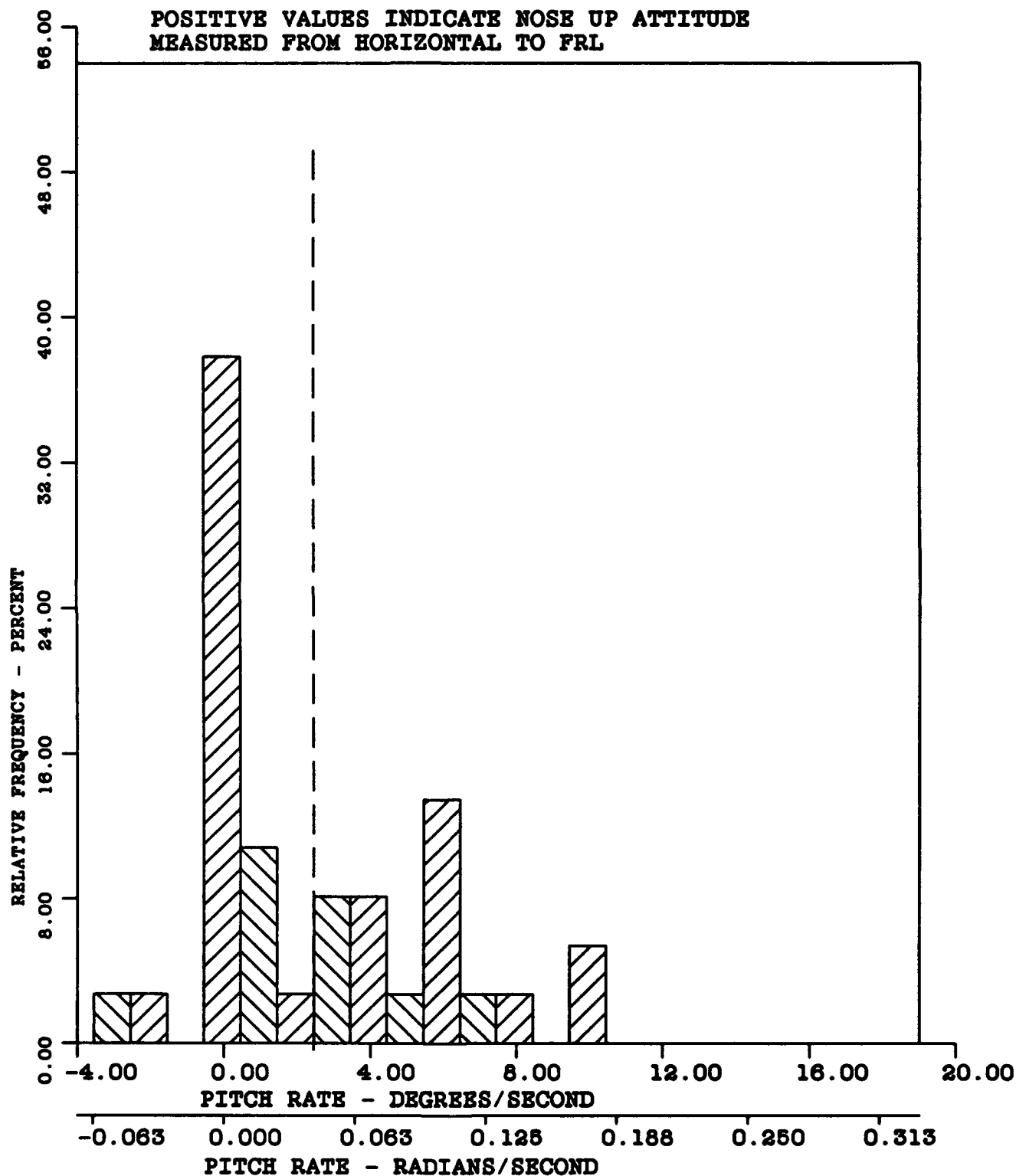


FIGURE K-42 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -2.44 DEG/SEC (0.043 RAD/SEC)

A3-0.71

S-3.20 DEG/SEC (0.056 RAD/SEC)

A4-2.70

CURVE FITTED - NORMAL

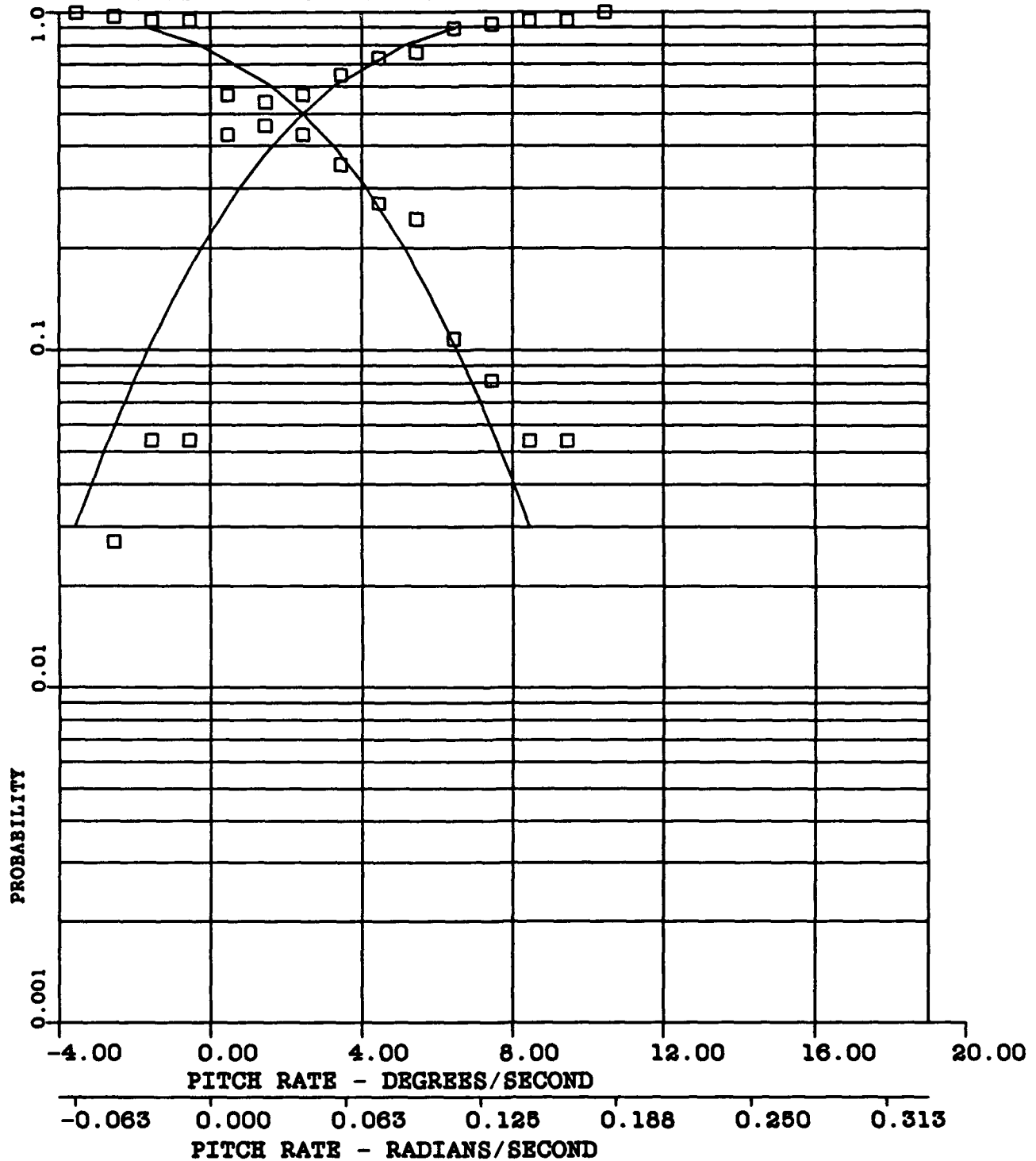
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE K-43 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING - 3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$  - 3.92 DEGREES (-0.068 RADIANS)

A3-1.15

S - 1.80 DEGREES (0.031 RADIANS)

A4-5.27

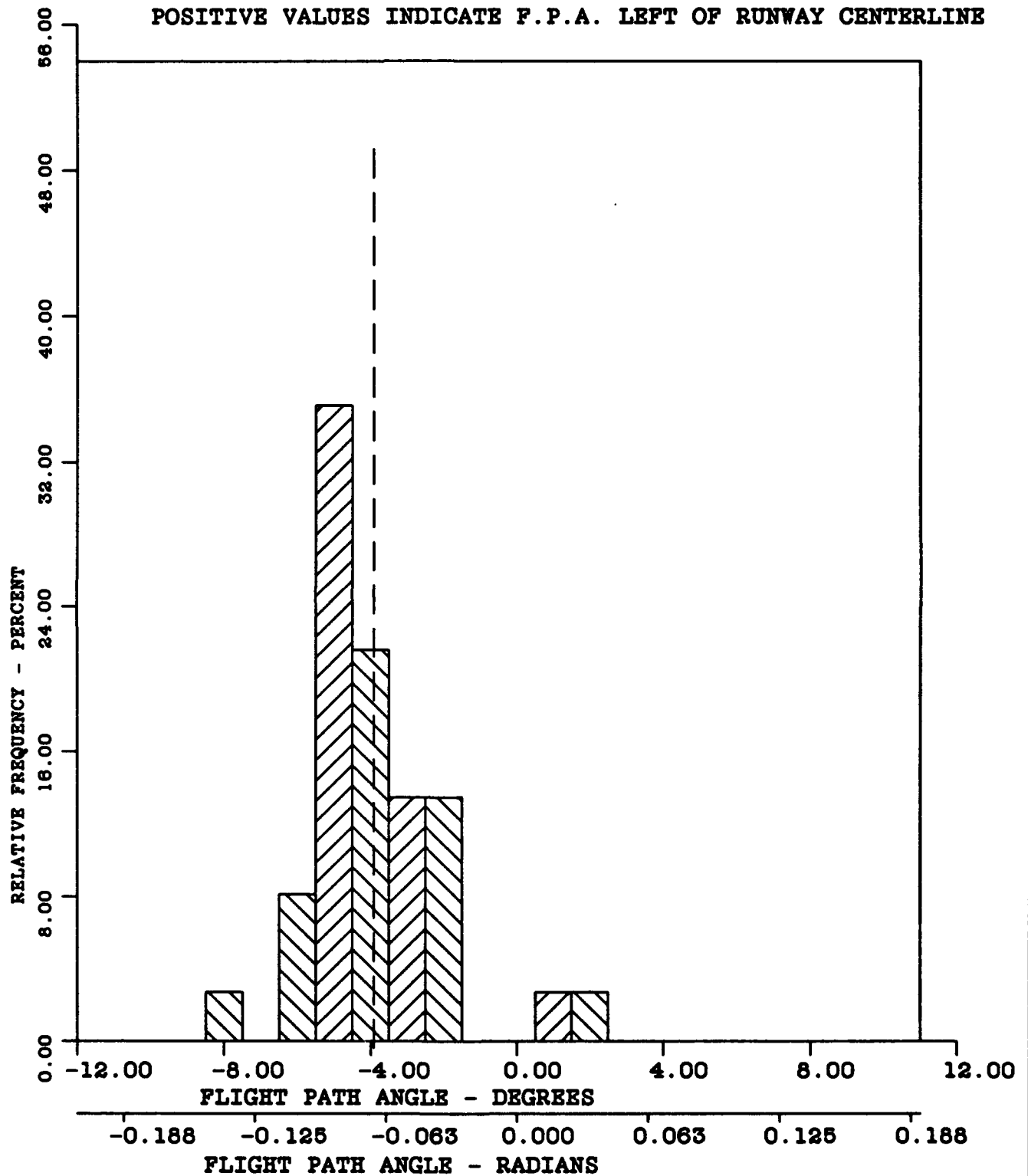


FIGURE K-44 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37  $\bar{X}$ -3.92 DEGREES (-0.068 RADIANS)

A3-1.15

S-1.80 DEGREES (0.031 RADIANS)

A4-5.27

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

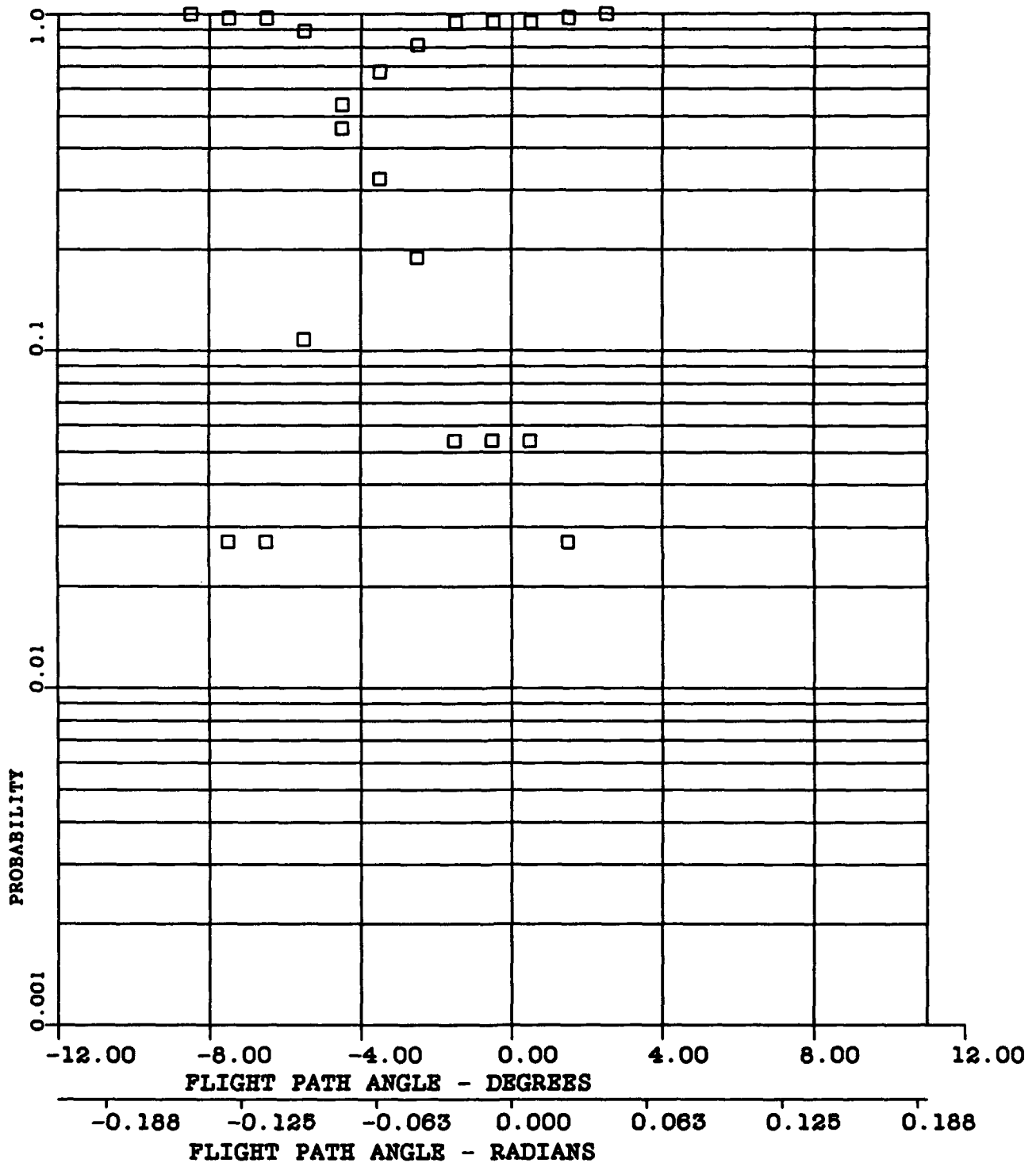


FIGURE K-45 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-68)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-37

 $\bar{X}$ -2.21 DEGREES (0.038 RADIANS)

A3-0.36

S-3.62 DEGREES (0.063 RADIANS)

A4-2.23

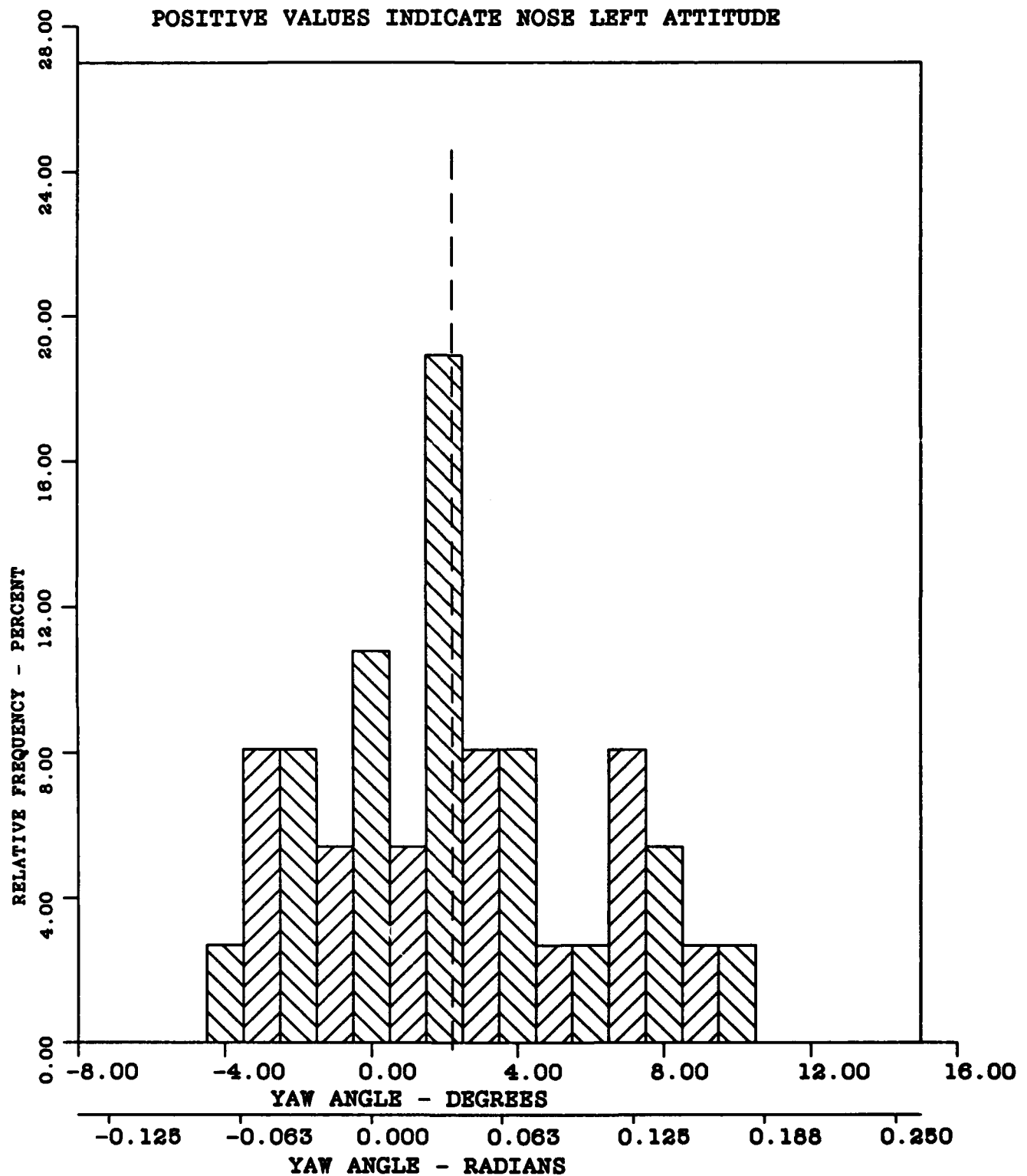


FIGURE K-46 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL EA-6 AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=37

 $\bar{X}$ =-2.21 DEGREES (0.038 RADIANS)

A3=0.36

S=3.62 DEGREES (0.063 RADIANS)

A4=2.23

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

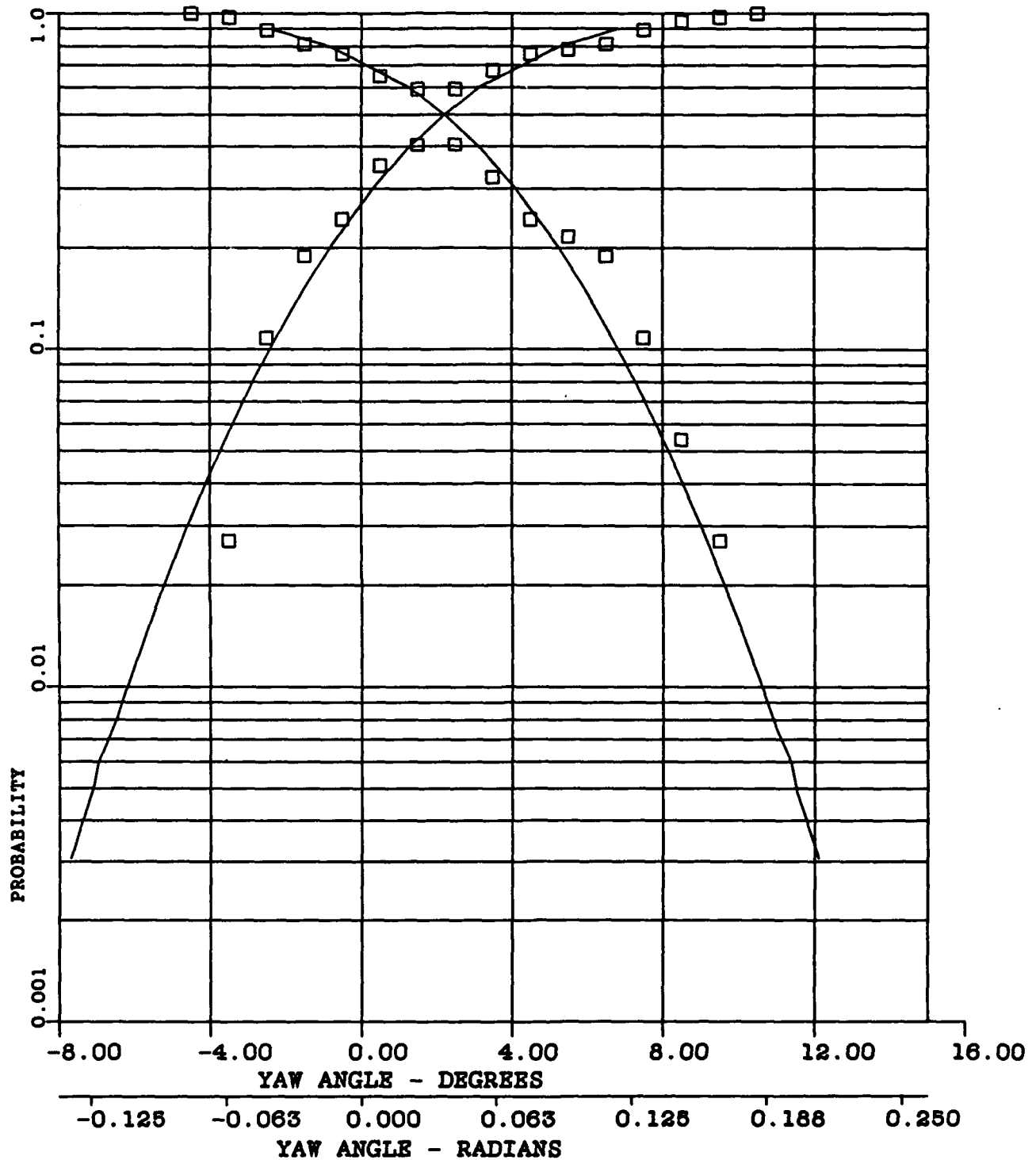


FIGURE K-47 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX L**

## **E-2C AIRCRAFT DAY CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

Appendix L:

Frequency and Probability Distributions,  
E-2C Aircraft, Day Landings

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MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -24.10 KNOTS (12.39 METRES/SEC)

A3--1.43

S-1.23 KNOTS (.63 METRES/SEC)

A4-4.50

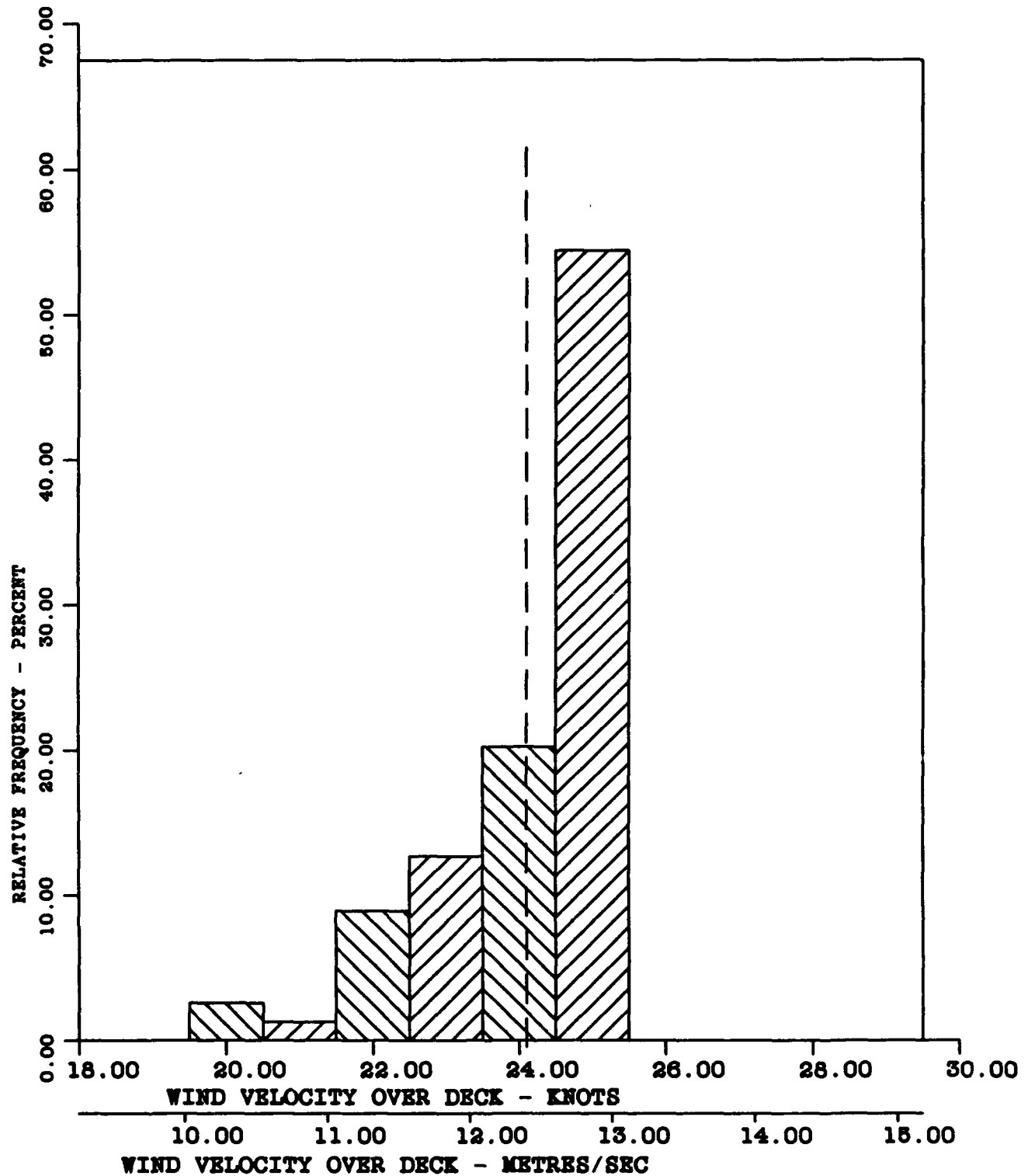


FIGURE L-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -24.10 KNOTS (12.39 METRES/SEC)

A3--1.43

S-1.23 KNOTS (.63 METRES/SEC)

A4-4.50

CURVE FITTED - PEARSON TYPE III

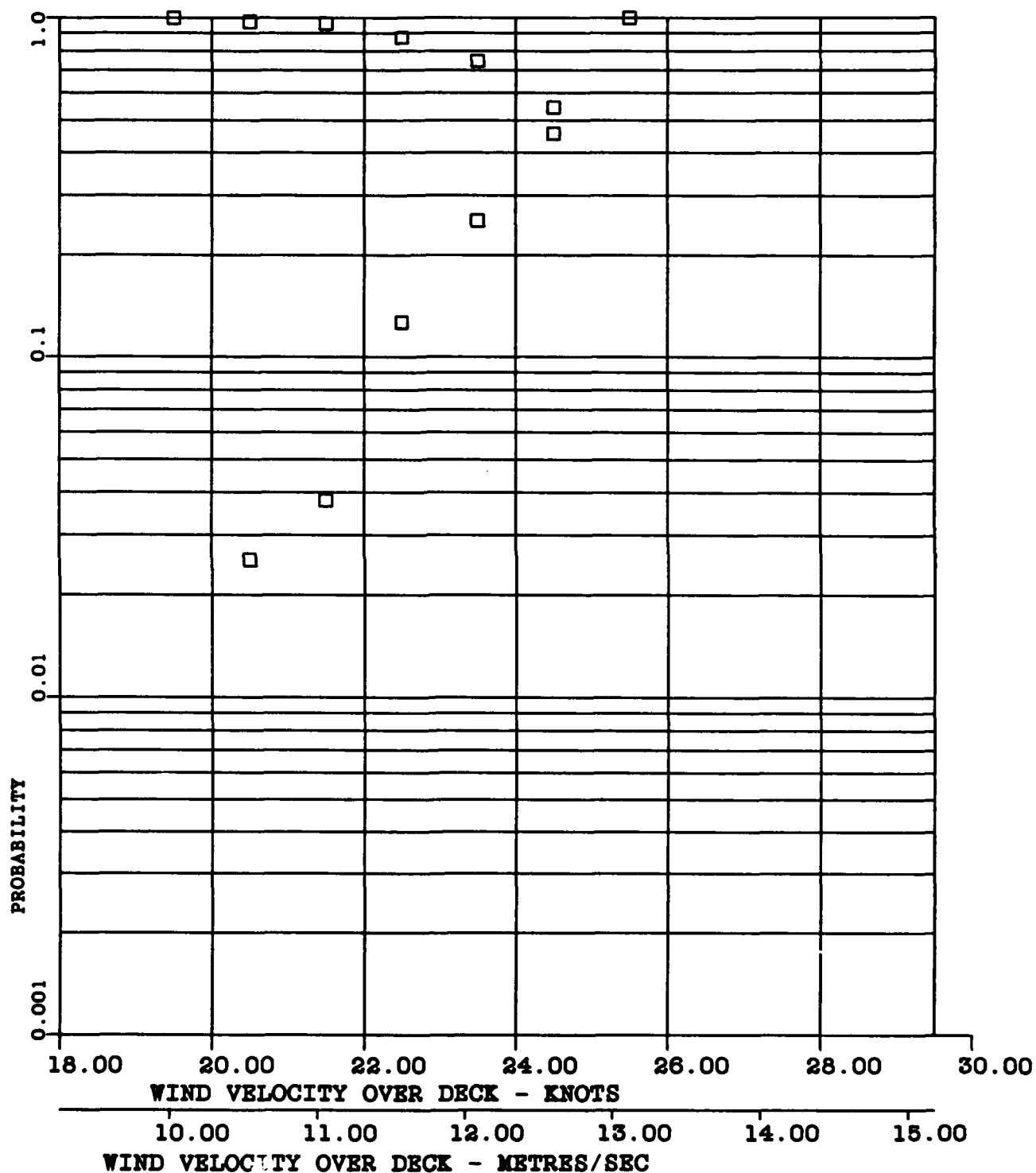


FIGURE L-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -107.55 KNOTS (55.32 METRES/SEC)

A3--.72

S-4.30 KNOTS (2.21 METRES/SEC)

A4-8.74

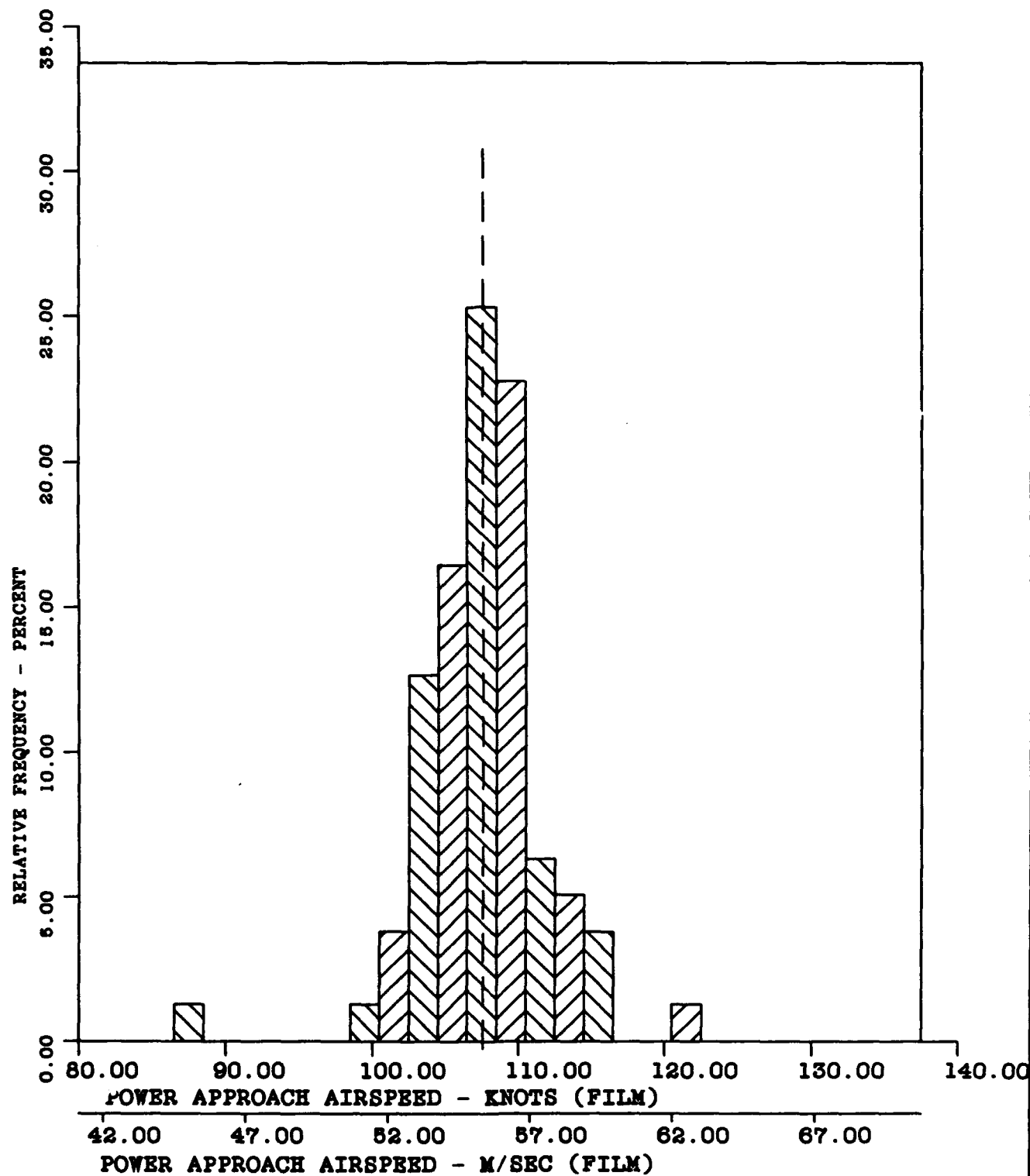


FIGURE L-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -107.55 KNOTS (55.32 METRES/SEC)

A3--.72

S-4.30 KNOTS (2.21 METRES/SEC)

A4-8.74

CURVE FITTED - PEARSON TYPE III

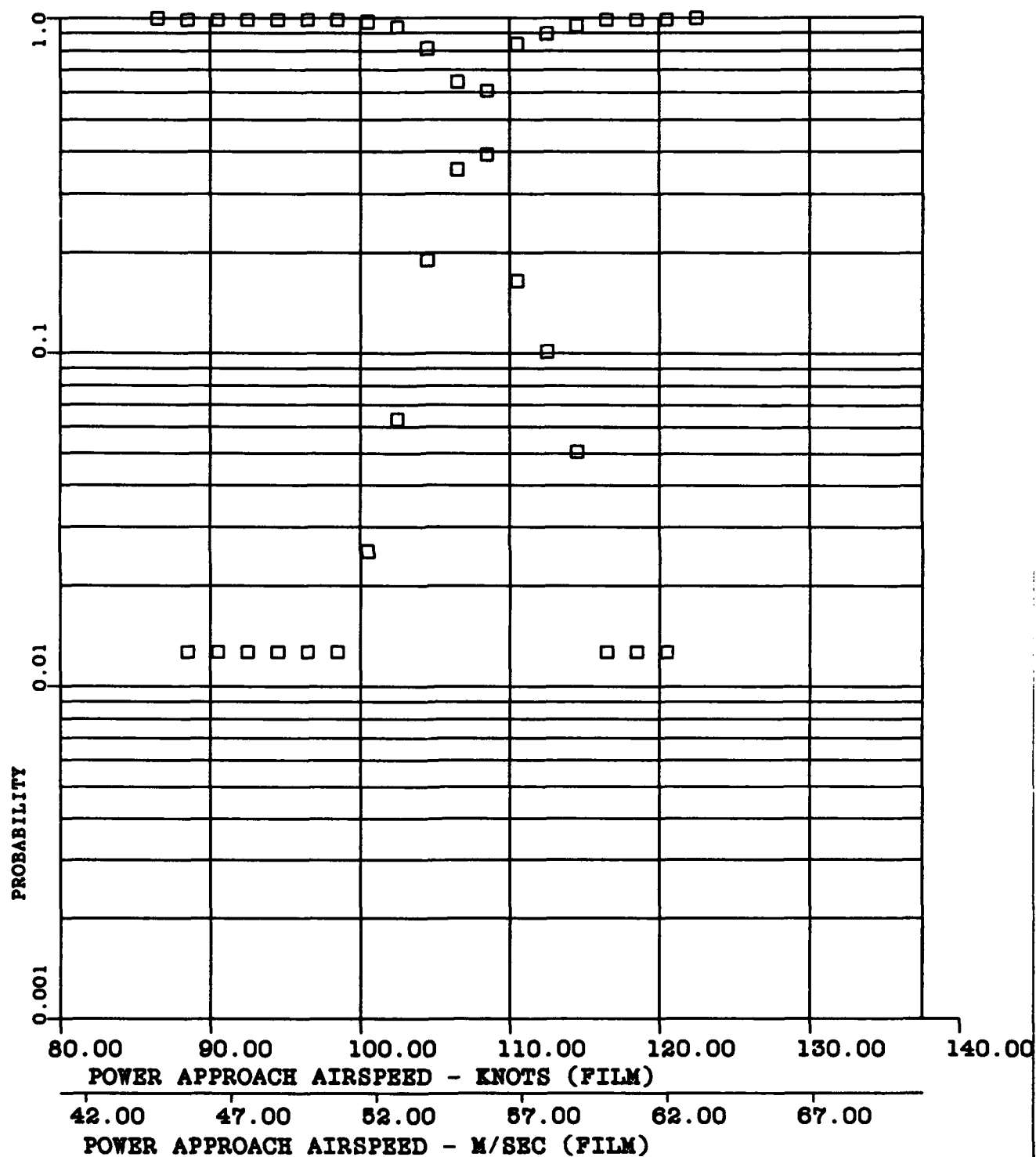


FIGURE L-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-75

 $\bar{X}$ -15.19 FEET (4.63 METRES)

A3-.16

S-2.43 FEET (.74 METRES)

A4-2.70

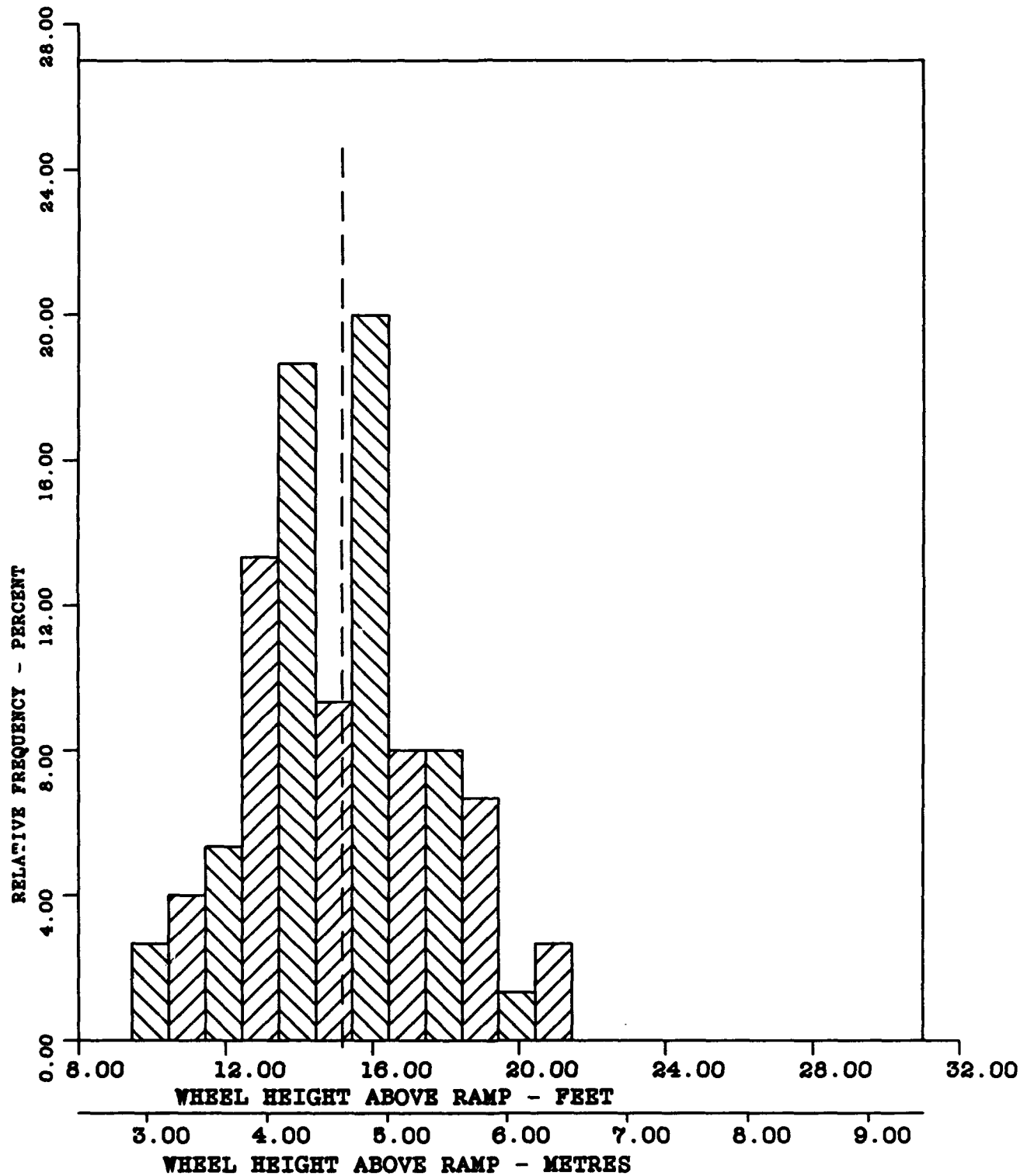


FIGURE L-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=75

 $\bar{X}$ =15.19 FEET (4.63 METRES)

A3=.16

S=2.43 FEET (.74 METRES)

A4=2.70

CURVE FITTED - NORMAL

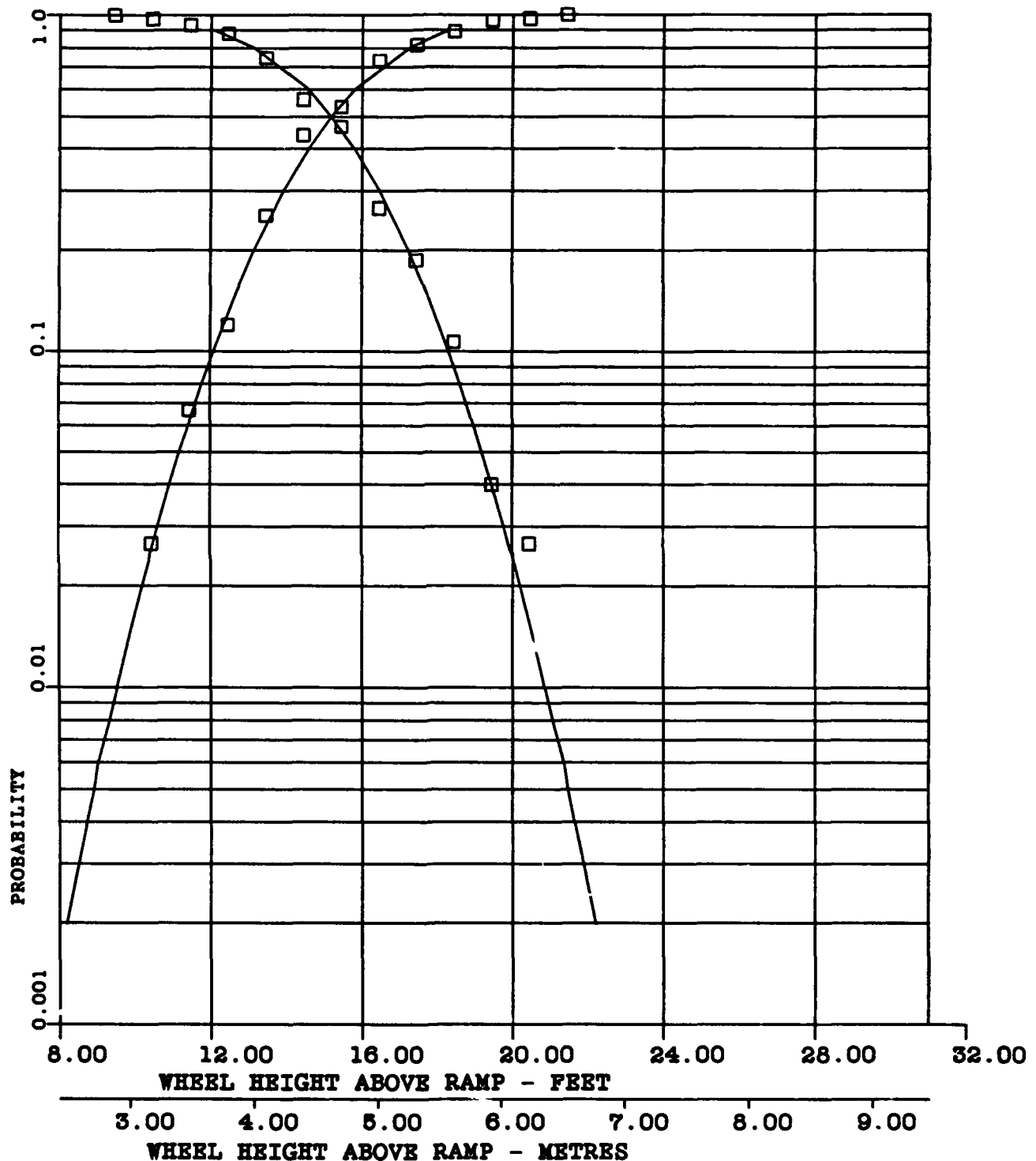


FIGURE L-6 PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -6.17 FEET/SEC (1.88 METRES/SEC)

A3--.38

S-2.28 FEET/SEC (.69 METRES/SEC)

A4-3.10

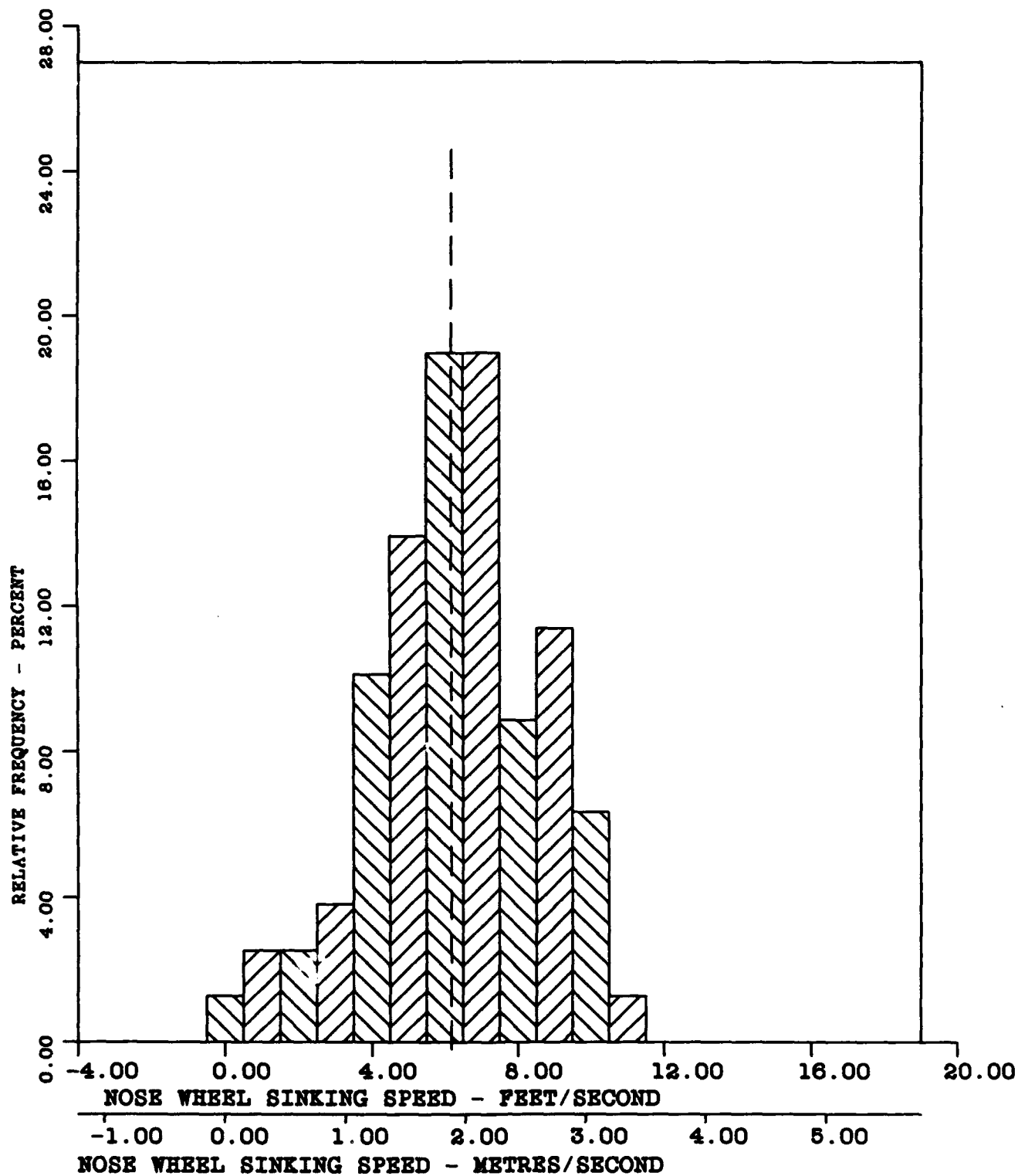


FIGURE L-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -6.17 FEET/SEC (1.88 METRES/SEC)

A3--.38

S-2.28 FEET/SEC (.69 METRES/SEC)

A4-3.10

CURVE FITTED - NORMAL

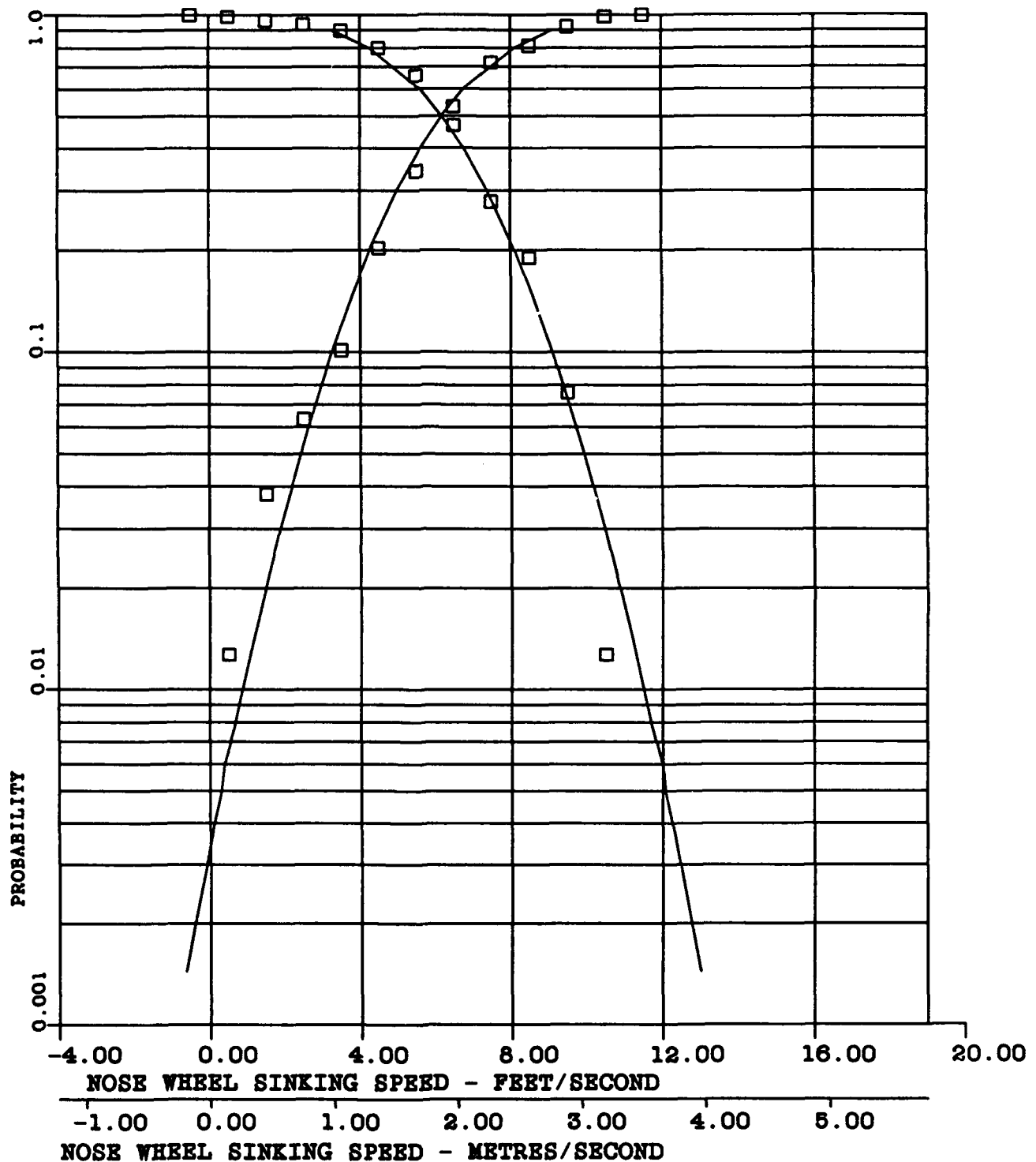


FIGURE L-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -7.68 FEET/SEC (2.34 METRES/SEC)

A3--.08

S-1.92 FEET/SEC (.58 METRES/SEC)

A4-2.76

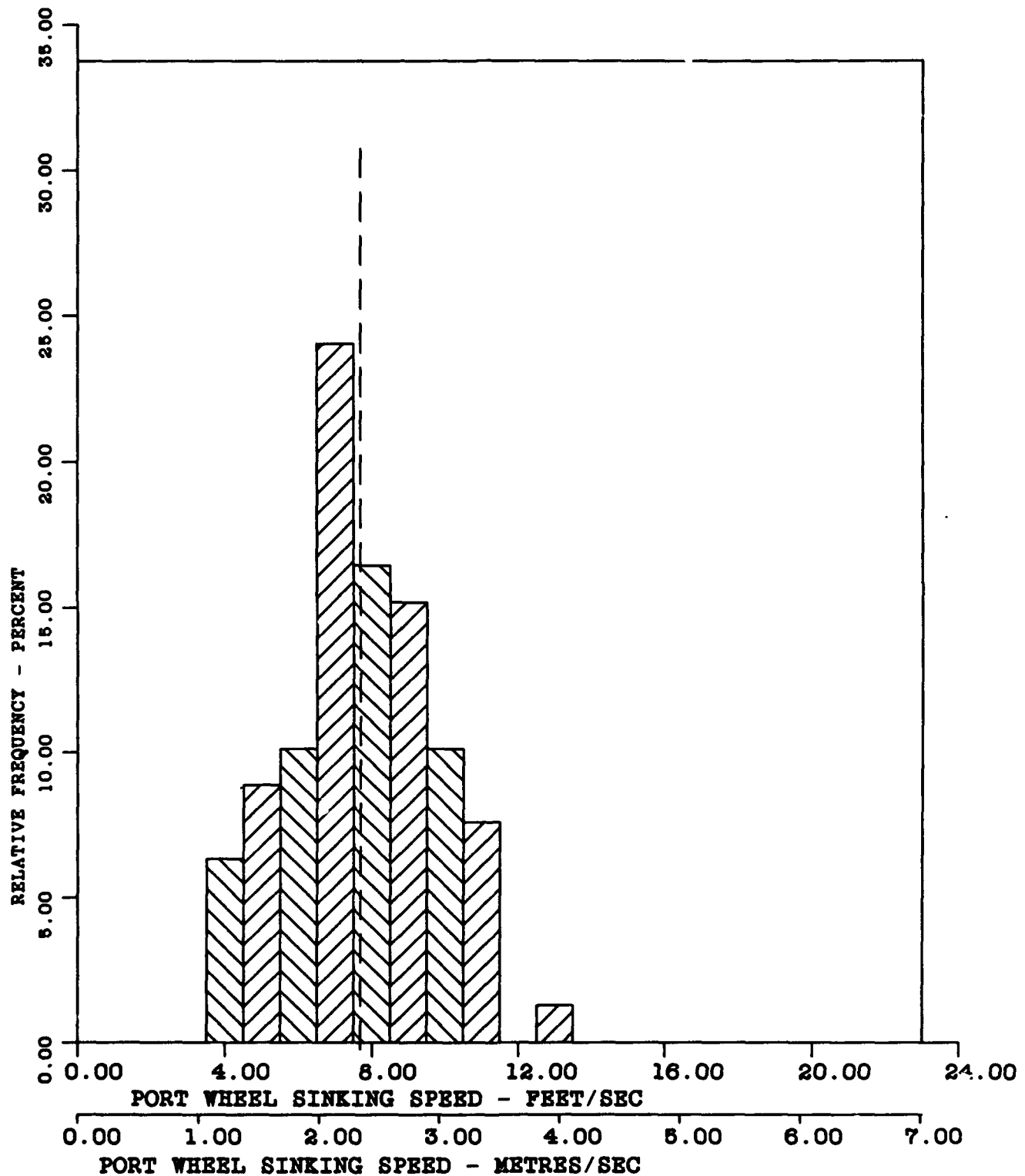


FIGURE L-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -7.68 FEET/SEC (2.34 METRES/SEC)

A3--.08

S-1.92 FEET/SEC (.58 METRES/SEC)

A4-2.76

CURVE FITTED - NORMAL

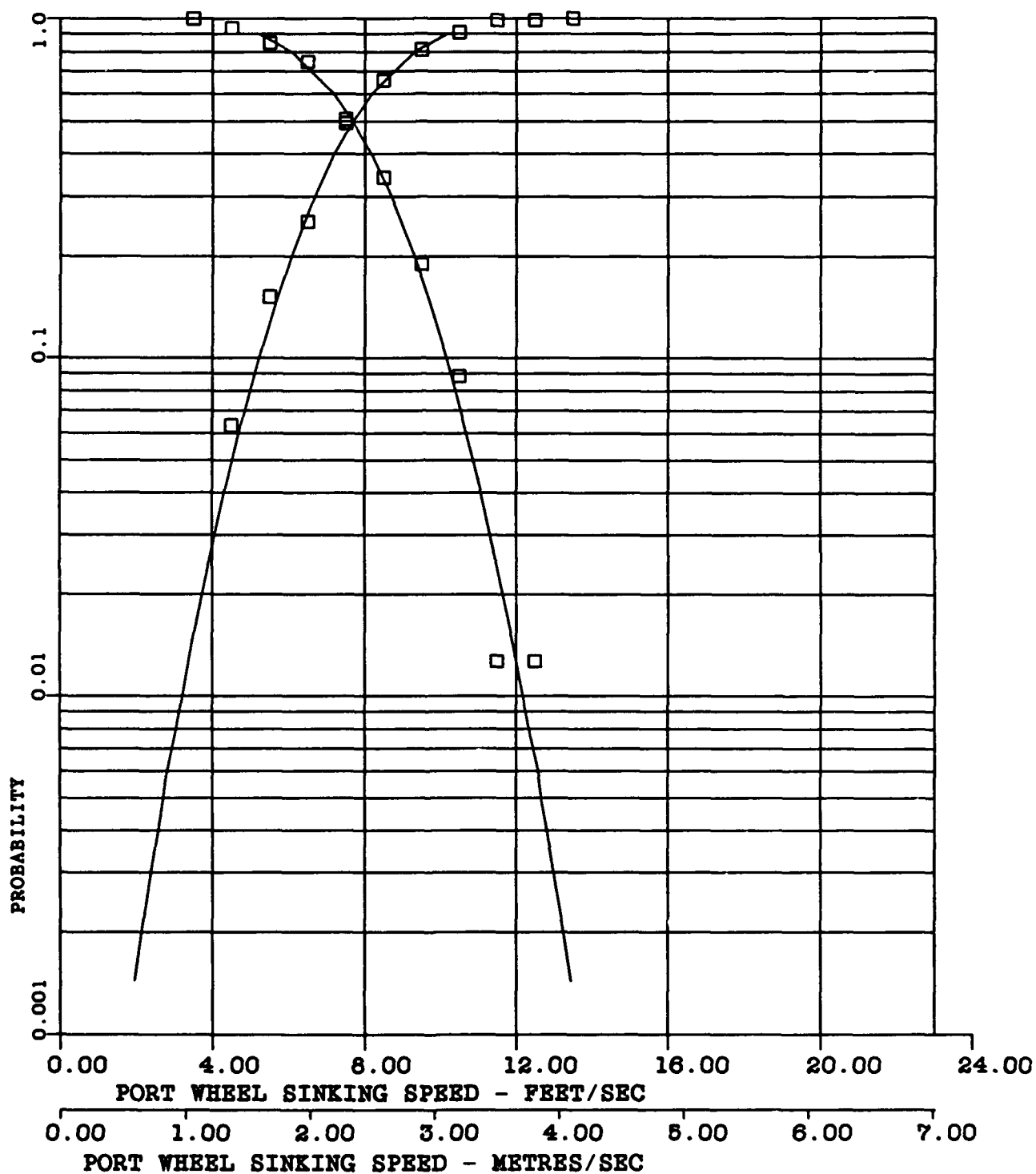


FIGURE L-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -7.53 FEET/SEC (2.29 METRES/SEC)

A3-.09

S-1.94 FEET/SEC (.59 METRES/SEC)

A4-4.09

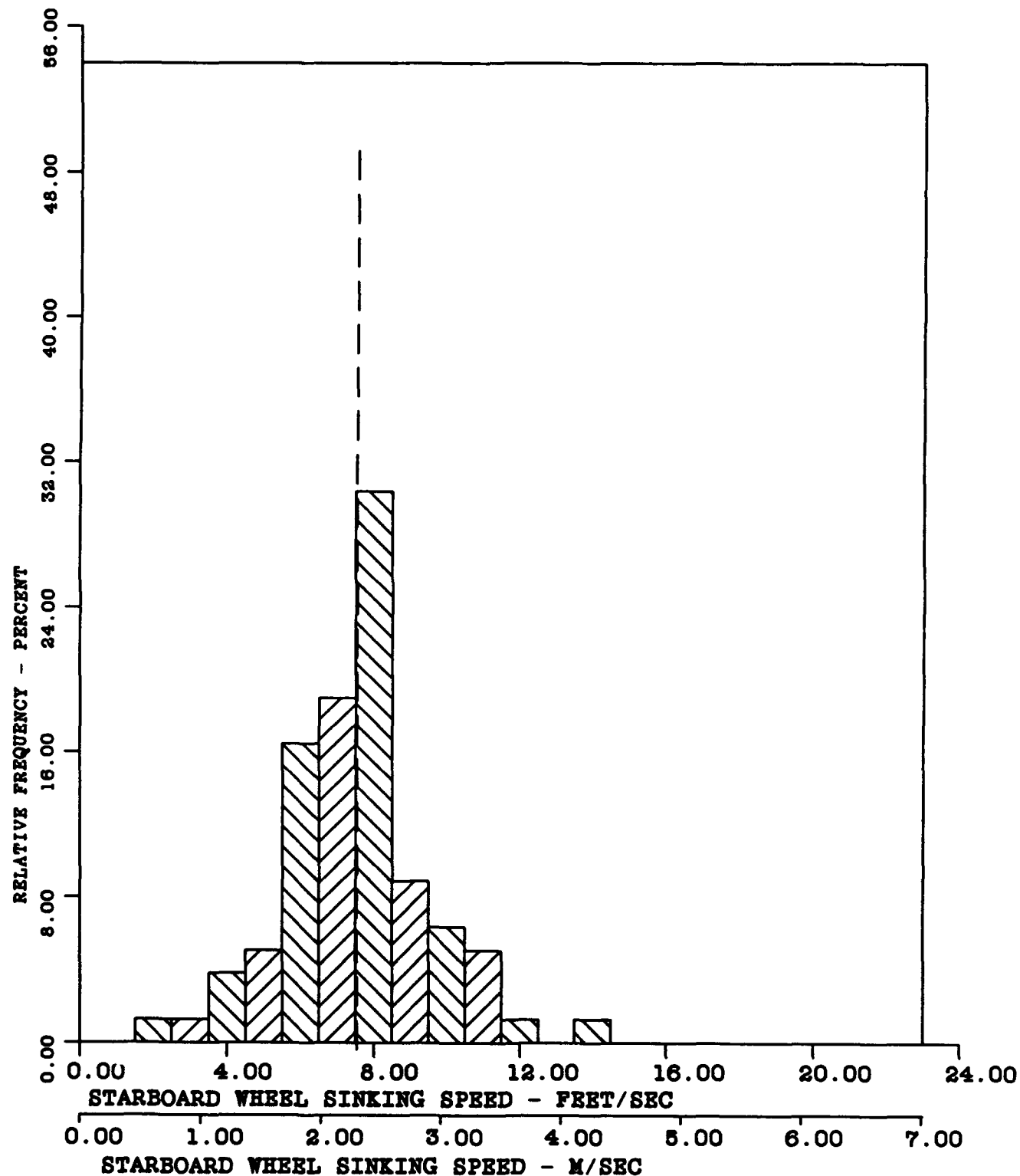


FIGURE L-11 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -7.53 FEET/SEC (2.29 METRES/SEC)

A3-.09

S-1.94 FEET/SEC (.59 METRES/SEC)

A4-4.09

CURVE FITTED - NORMAL

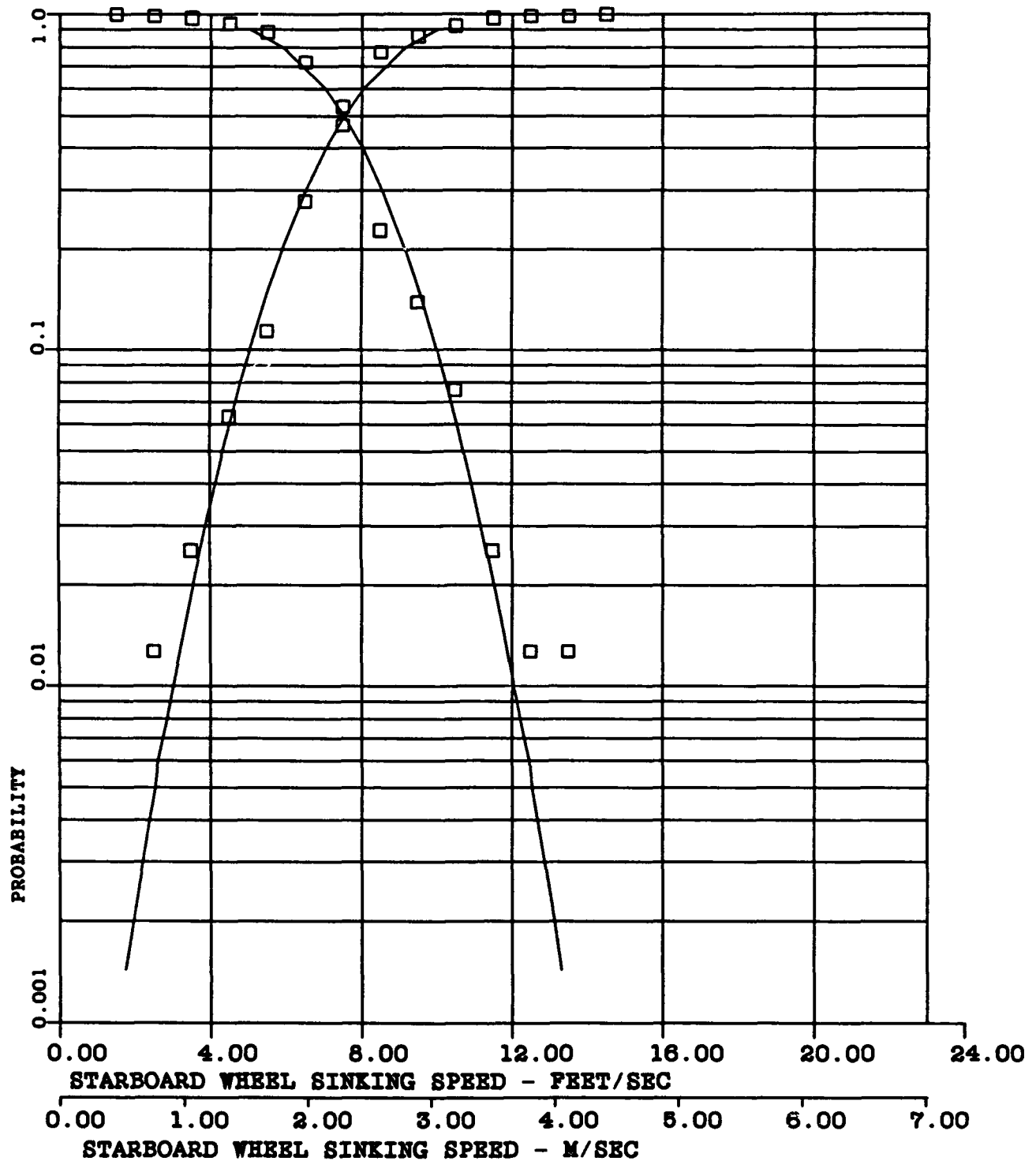


FIGURE L-12 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -7.53 FEET/SEC (2.29 METRES/SEC)

A3--.31

S-1.75 FEET/SEC (.53 METRES/SEC)

A4-3.17

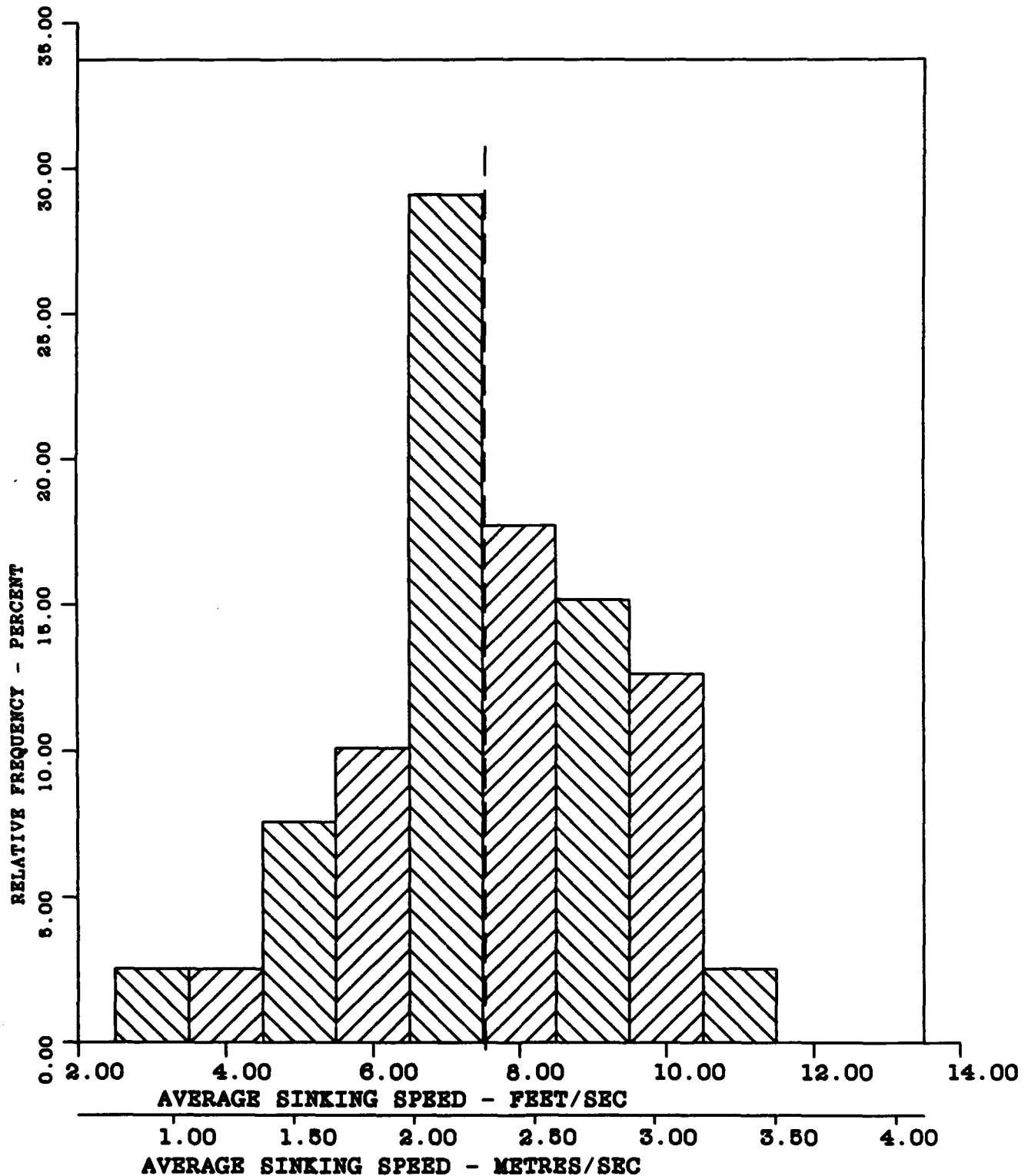


FIGURE L-13 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -7.53 FEET/SEC (2.29 METRES/SEC)

A3--.31

S-1.75 FEET/SEC (.53 METRES/SEC)

A4-3.17

CURVE FITTED - NORMAL

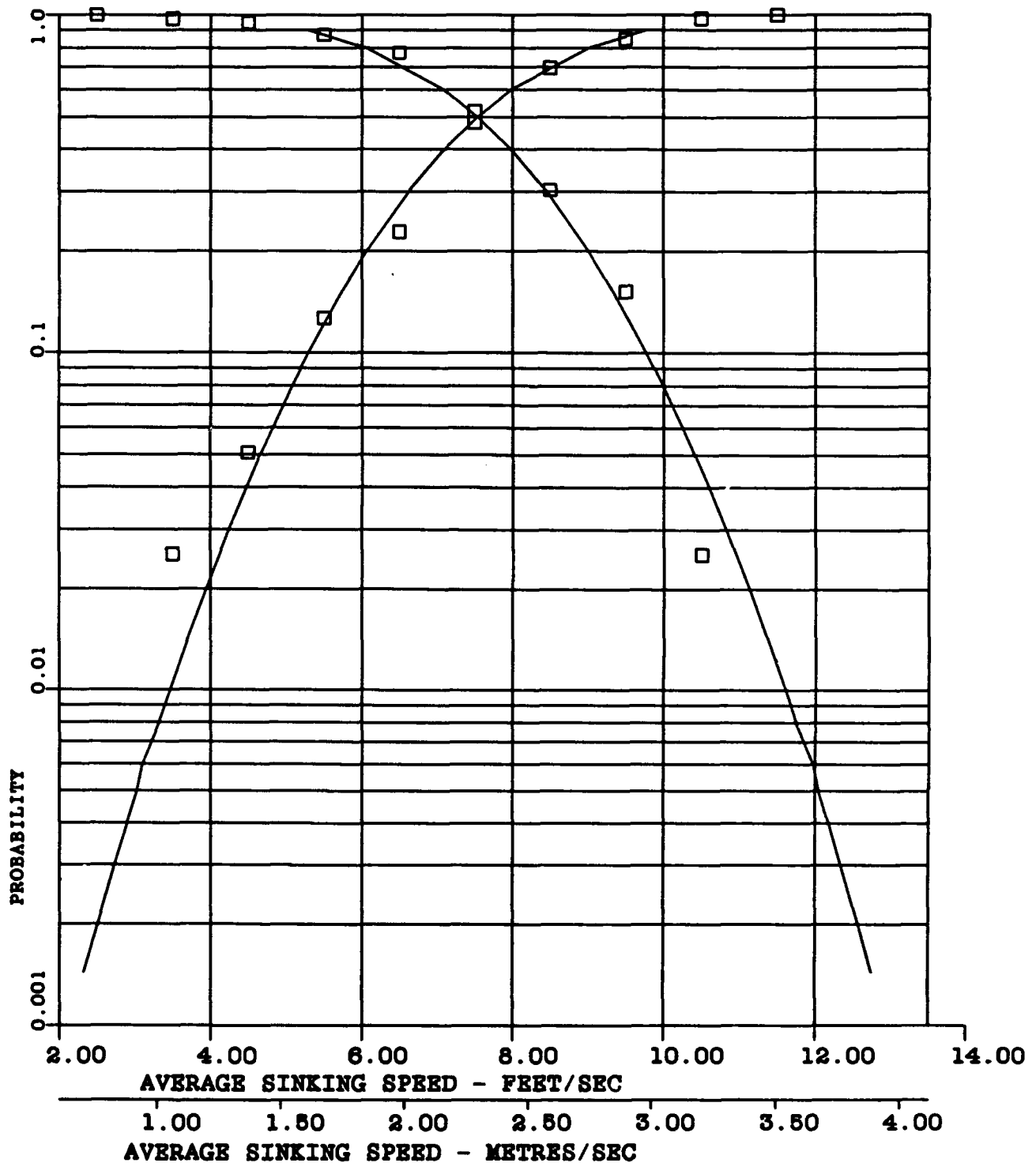


FIGURE L-14 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=4

 $\bar{X}$ =6.67 FEET/SEC (2.03 METRES/SEC)

S=1.16 FEET/SEC (.35 METRES/SEC)

A3=.37

A4=1.93

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

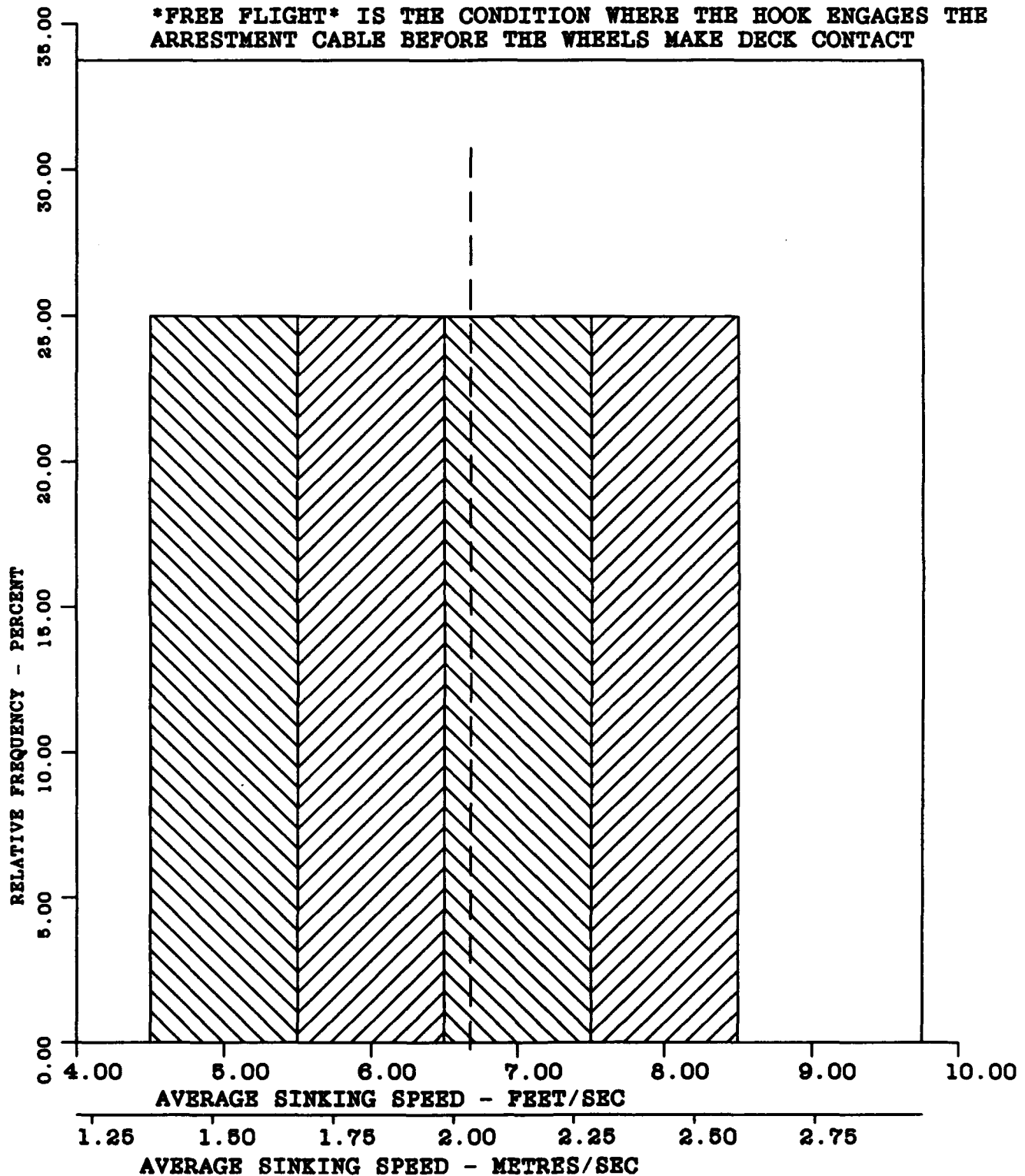


FIGURE L-15 FREQUENCY DISTRIBUTION OF AVERAGE SINKING  
SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL B-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-4

 $\bar{X}$ -6.67 FEET/SEC (2.03 METRES/SEC)

A3-.37

S-1.16 FEET/SEC (.35 METRES/SEC)

A4-1.93

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

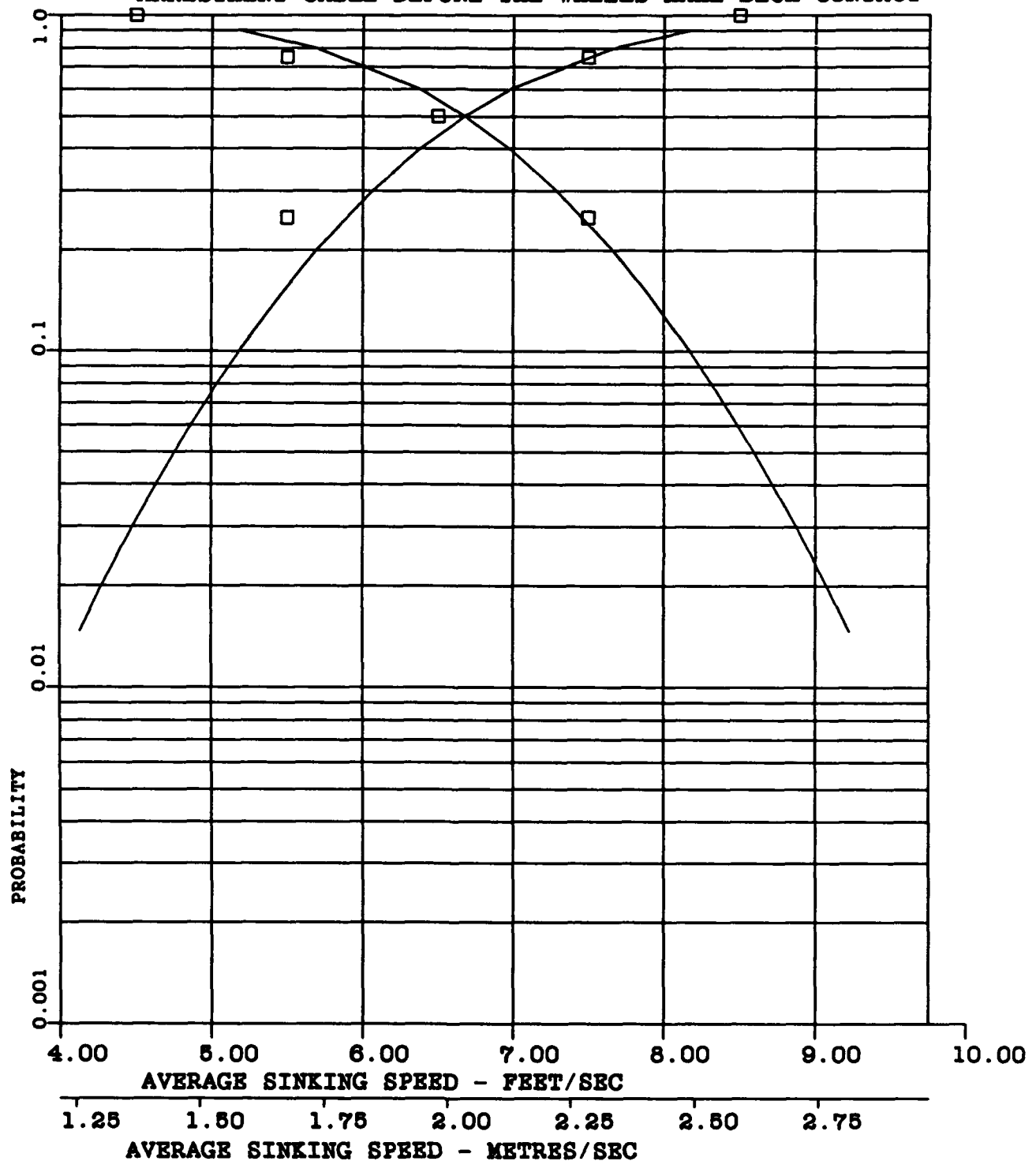


FIGURE L-16 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -.98

S-.10

A3-.45

A4-3.15

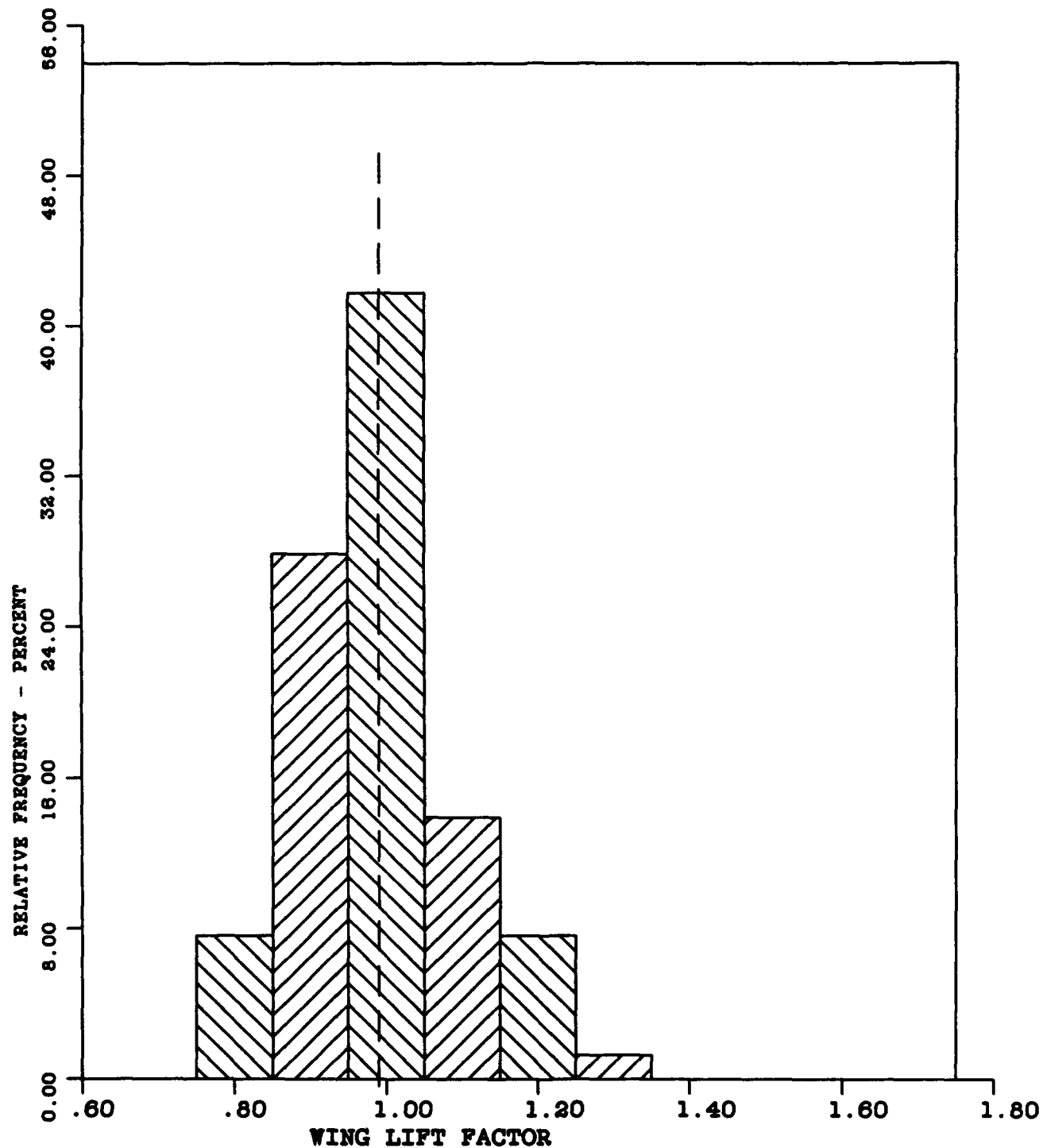


FIGURE L-17 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X} = .98$ 

S = .10

CURVE FITTED - NORMAL

A3 = .45

A4 = 3.15

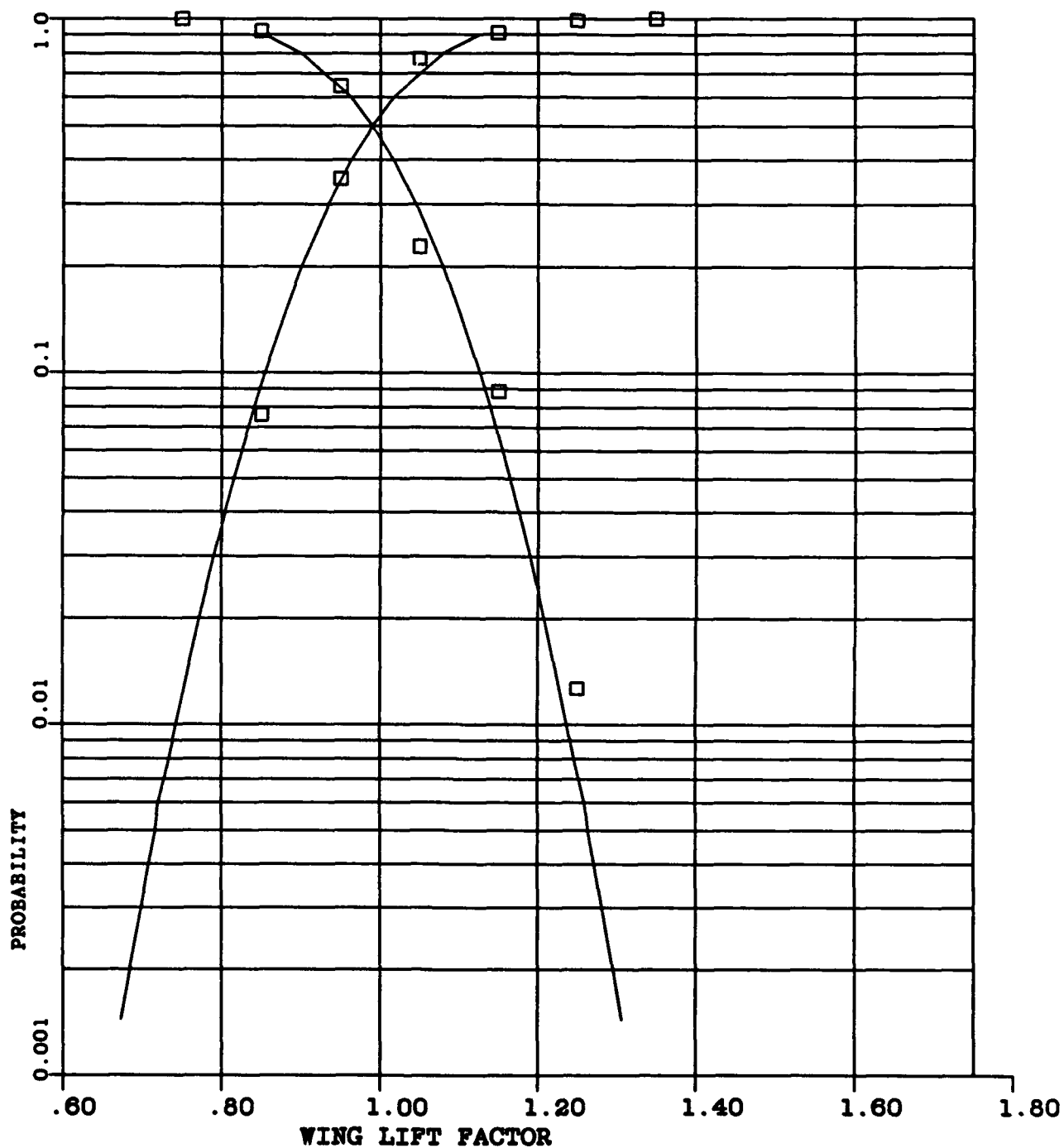


FIGURE L-18 PROBABILITY DISTRIBUTION OF WING LIFT FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-4

 $\bar{X}$ -1.07

A3-.49

S-.08

A4-1.62

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

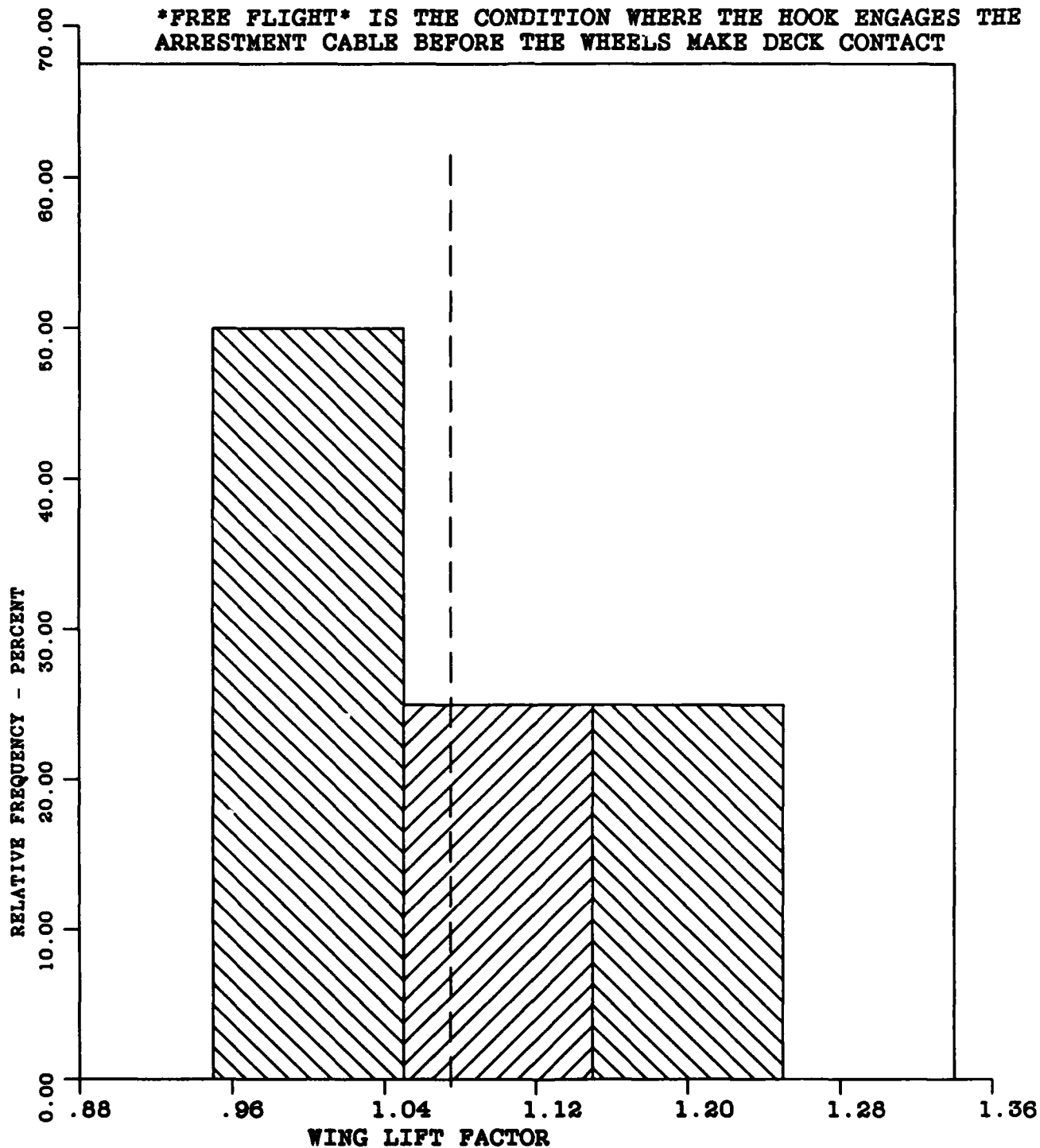


FIGURE L-19 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-4

 $\bar{X}$ -1.07

S-.08

A3-.49

A4-1.62

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

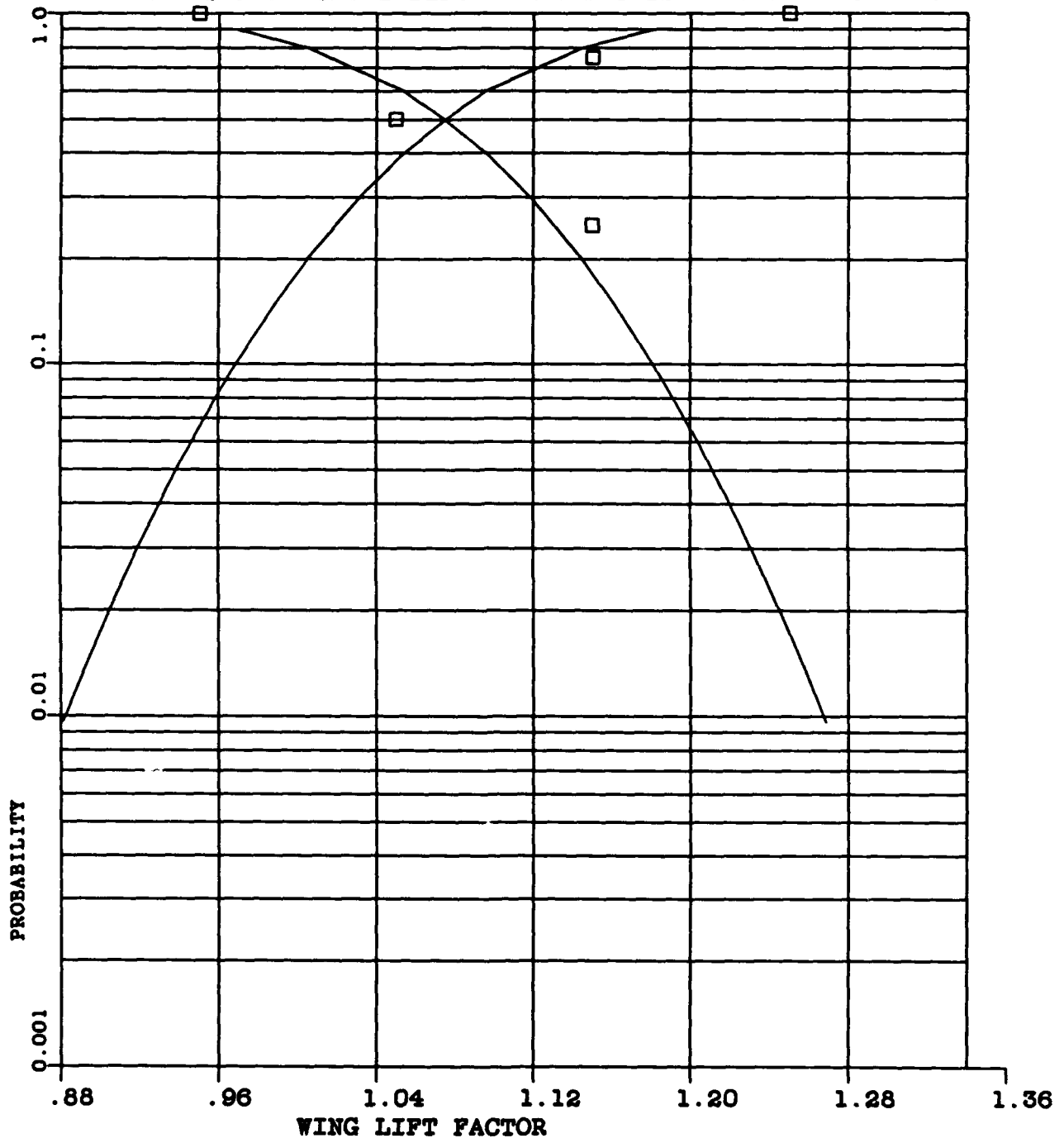


FIGURE L-20 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-75  $\bar{X}$ -9.02 DEGREES (.157 RADIANS)

A3--1.82

S-1.83 DEGREES (.026 RADIANS)

A4-11.77

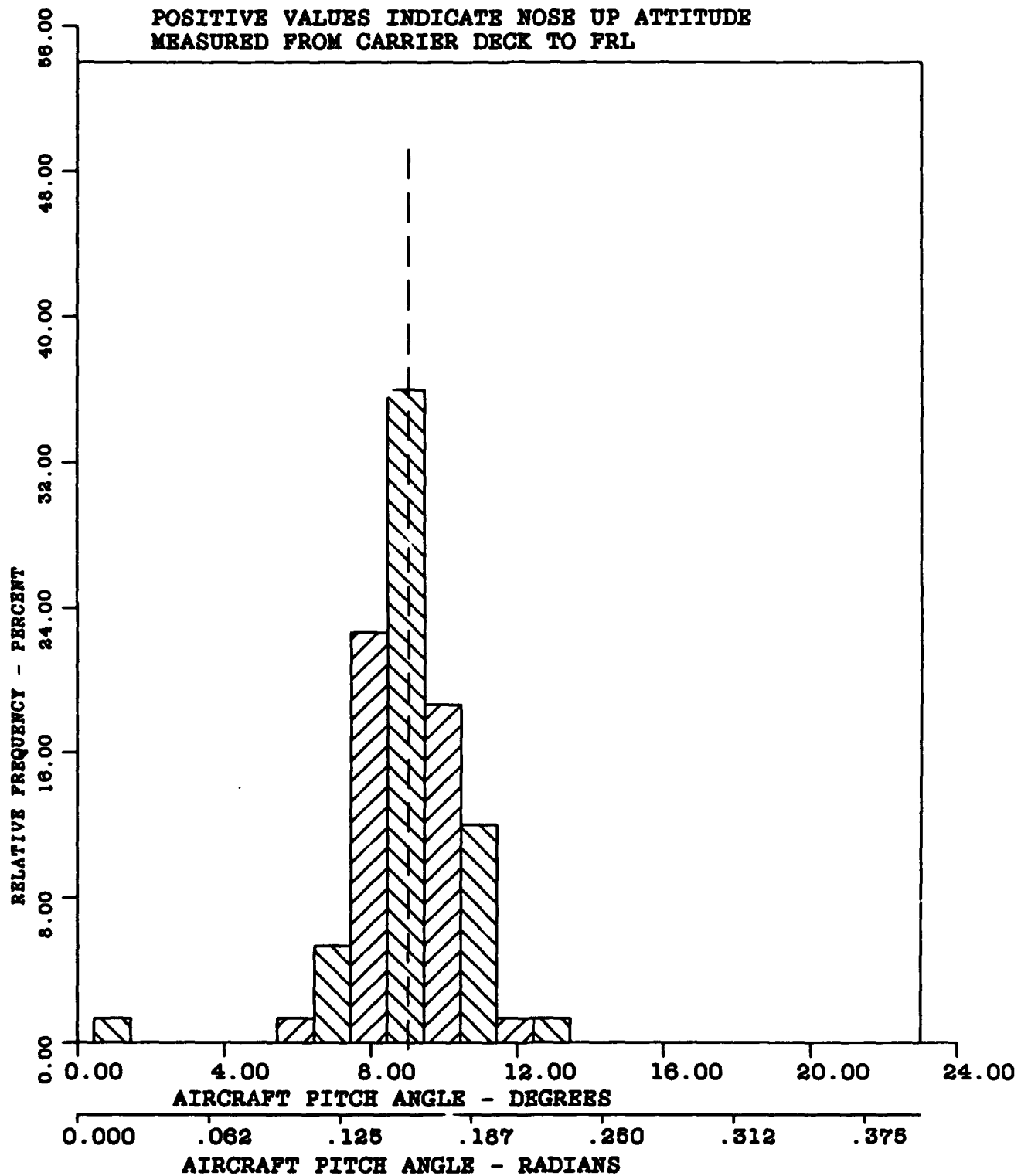


FIGURE L-21 FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-75

 $\bar{X}$ -9.02 DEGREES (.157 RADIANS)

A3--1.82

S-1.53 DEGREES (.026 RADIANS)

A4-11.77

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE NOSE UP ATTITUDE

MEASURED FROM CARRIER DECK TO FRL

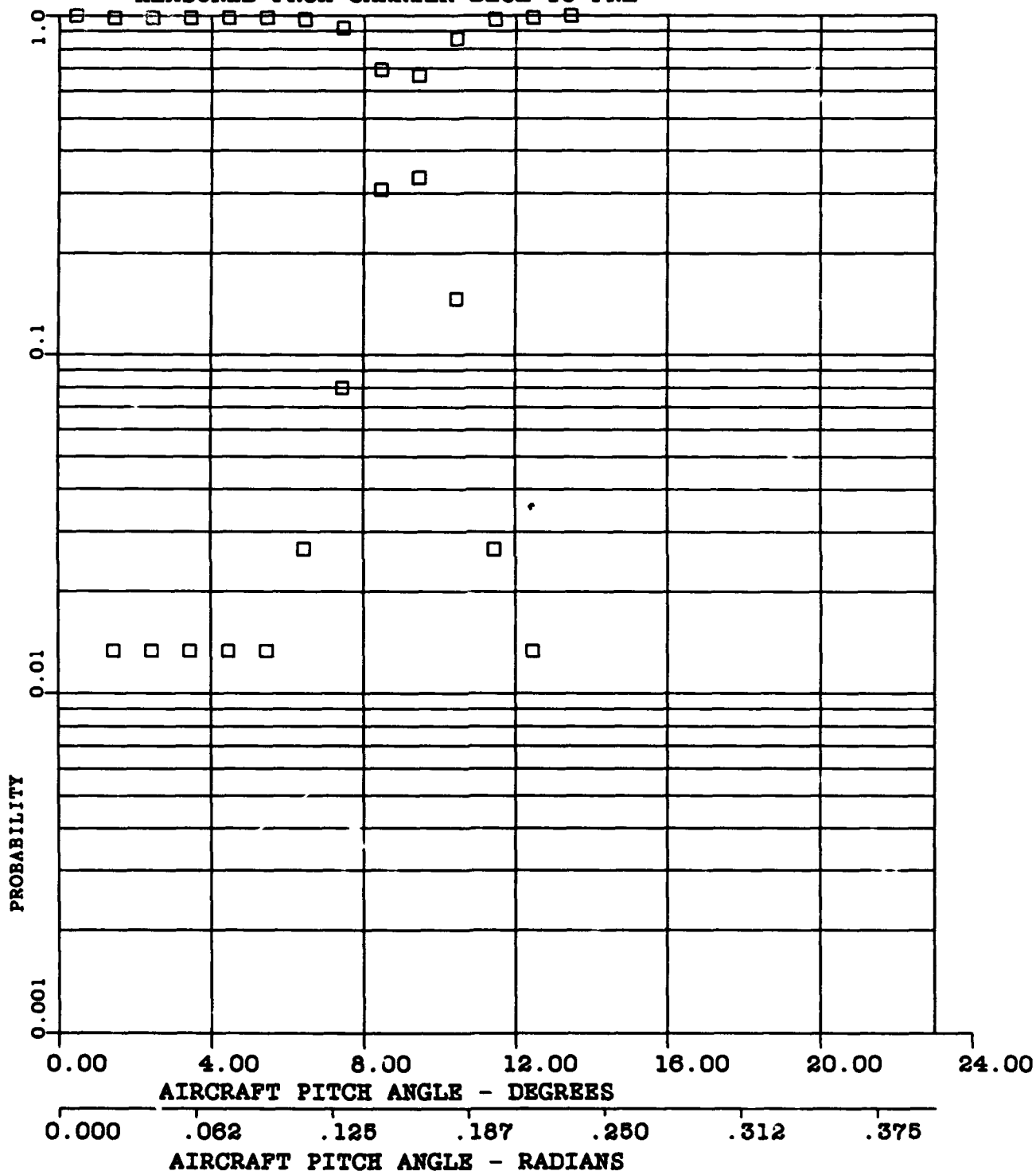


FIGURE L-22 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -7.55 DEGREES (.131 RADIANS)

A3--1.03

S-1.18 DEGREES (.020 RADIANS)

A4-7.78

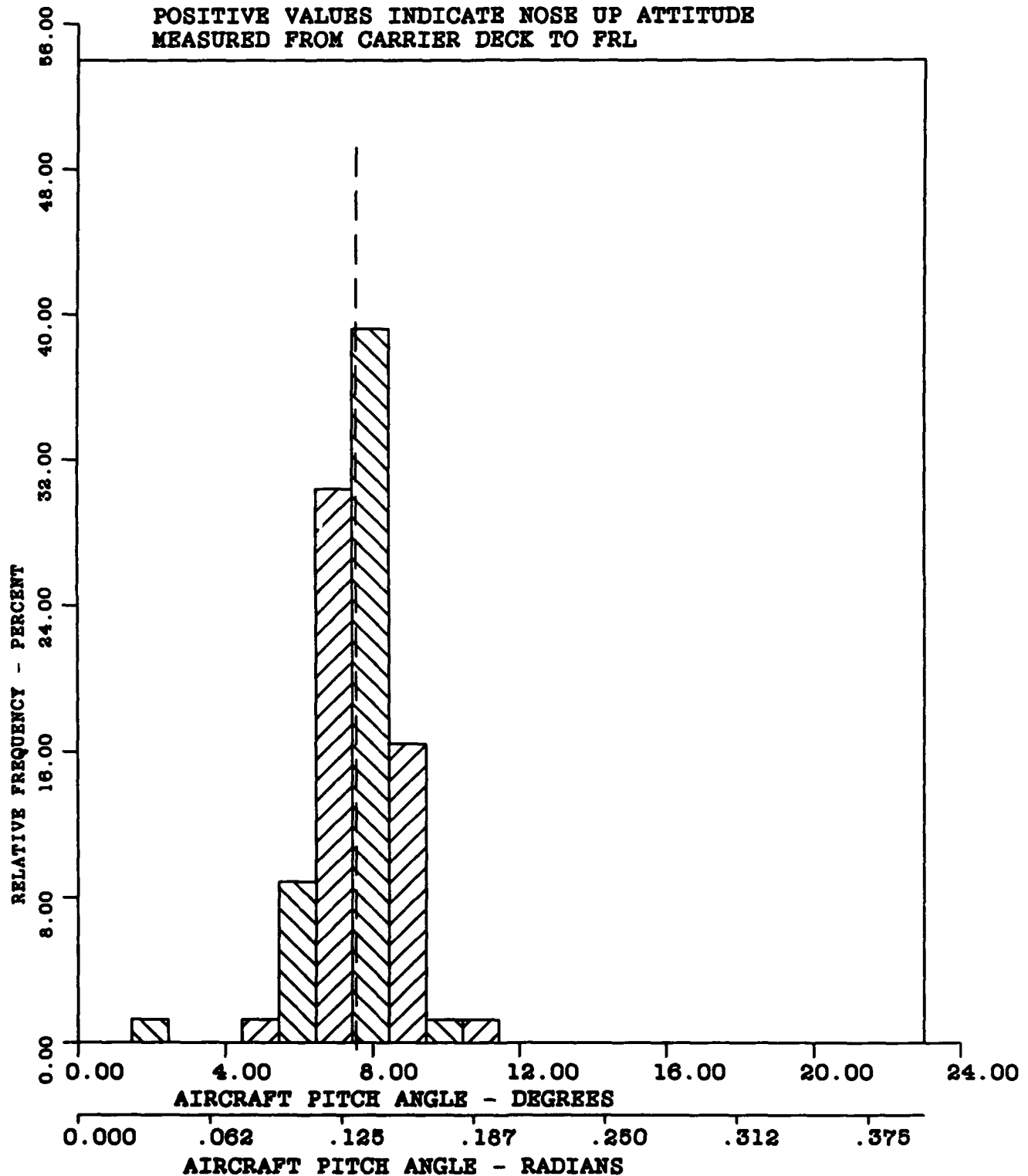


FIGURE L-23 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -7.55 DEGREES (.131 RADIANS)

A3--1.03

S-1.18 DEGREES (.020 RADIANS)

A4-7.78

CURVE FITTED - PEARSON TYPE III

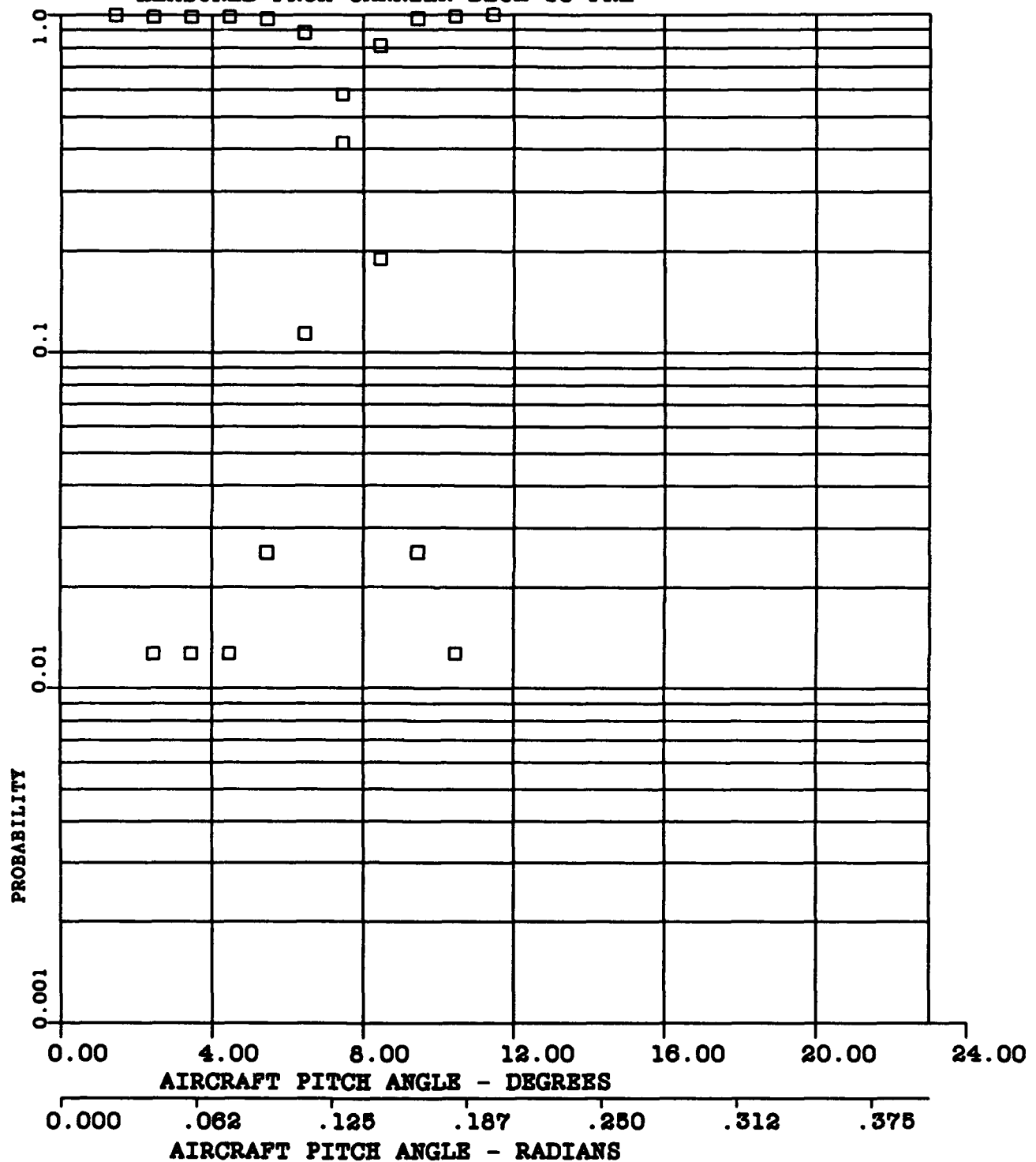
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE L-24 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-4

 $\bar{X}$ -8.90 DEGREES (.155 RADIANS)

A3-.44

S-1.46 DEGREES (.025 RADIANS)

A4-1.69

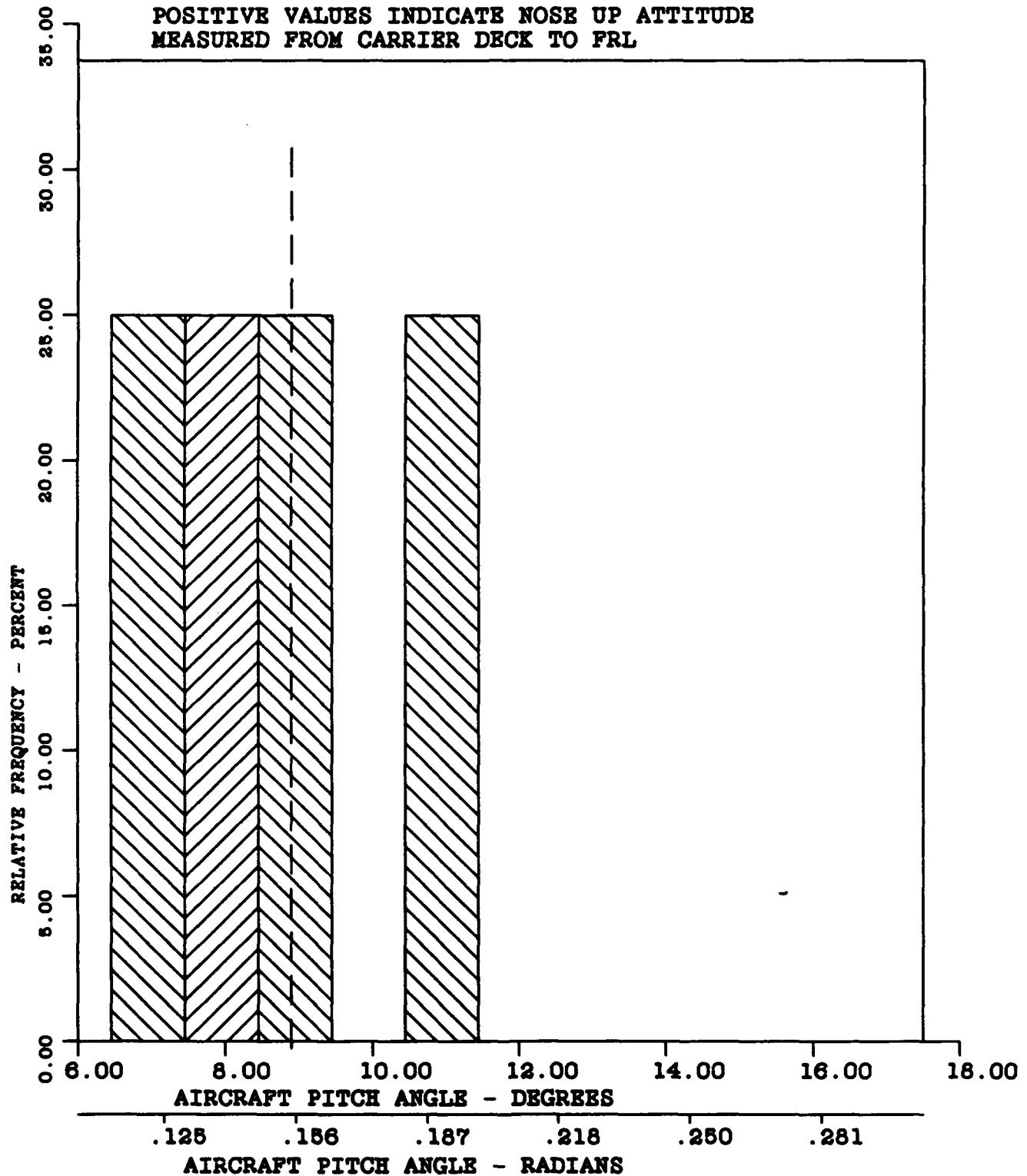


FIGURE L-25 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-4

 $\bar{X}$ -8.90 DEGREES (.155 RADIANS)

A3-.44

S-1.46 DEGREES (.025 RADIANS)

A4-1.69

CURVE FITTED - NORMAL

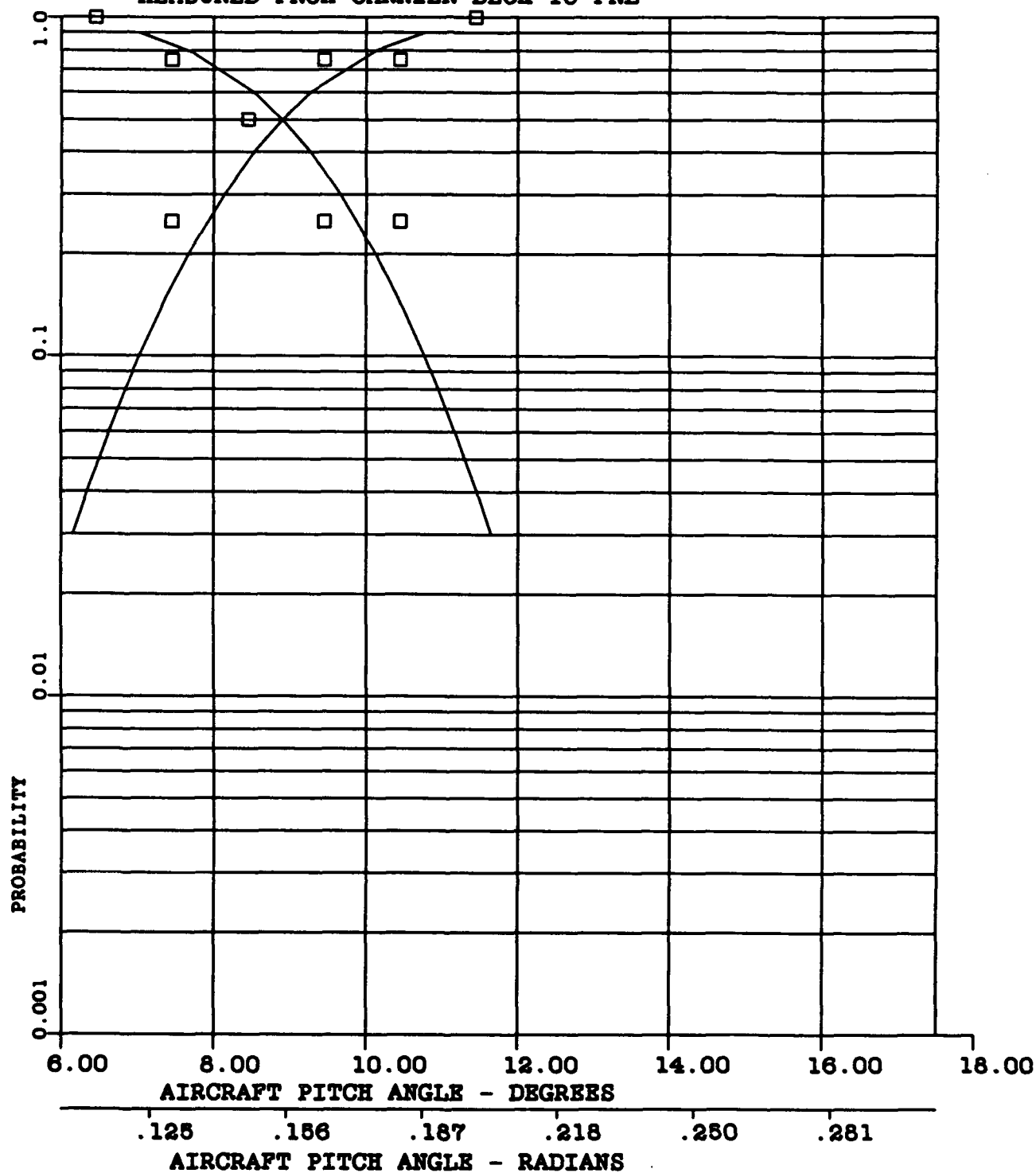
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE L-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-75

 $\bar{X}$ -1.01 DEGREES (.017 RADIANS)

A3-.68

S-2.82 DEGREES (.049 RADIANS)

A4-3.53

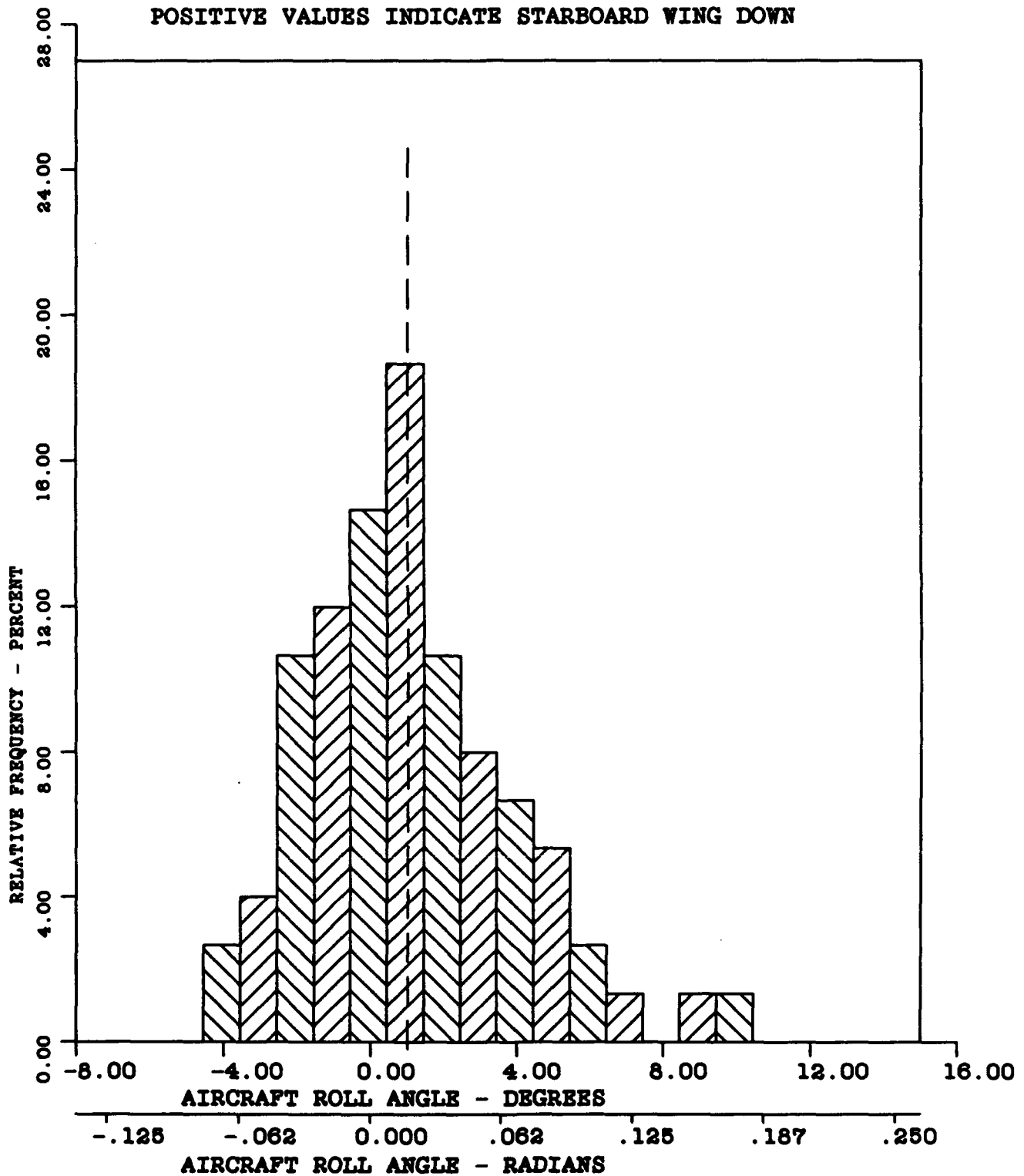


FIGURE L-27 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-75

 $\bar{X}$ -1.01 DEGREES (.017 RADIANS)

A3-.68

S-2.82 DEGREES (.049 RADIANS)

A4-3.53

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

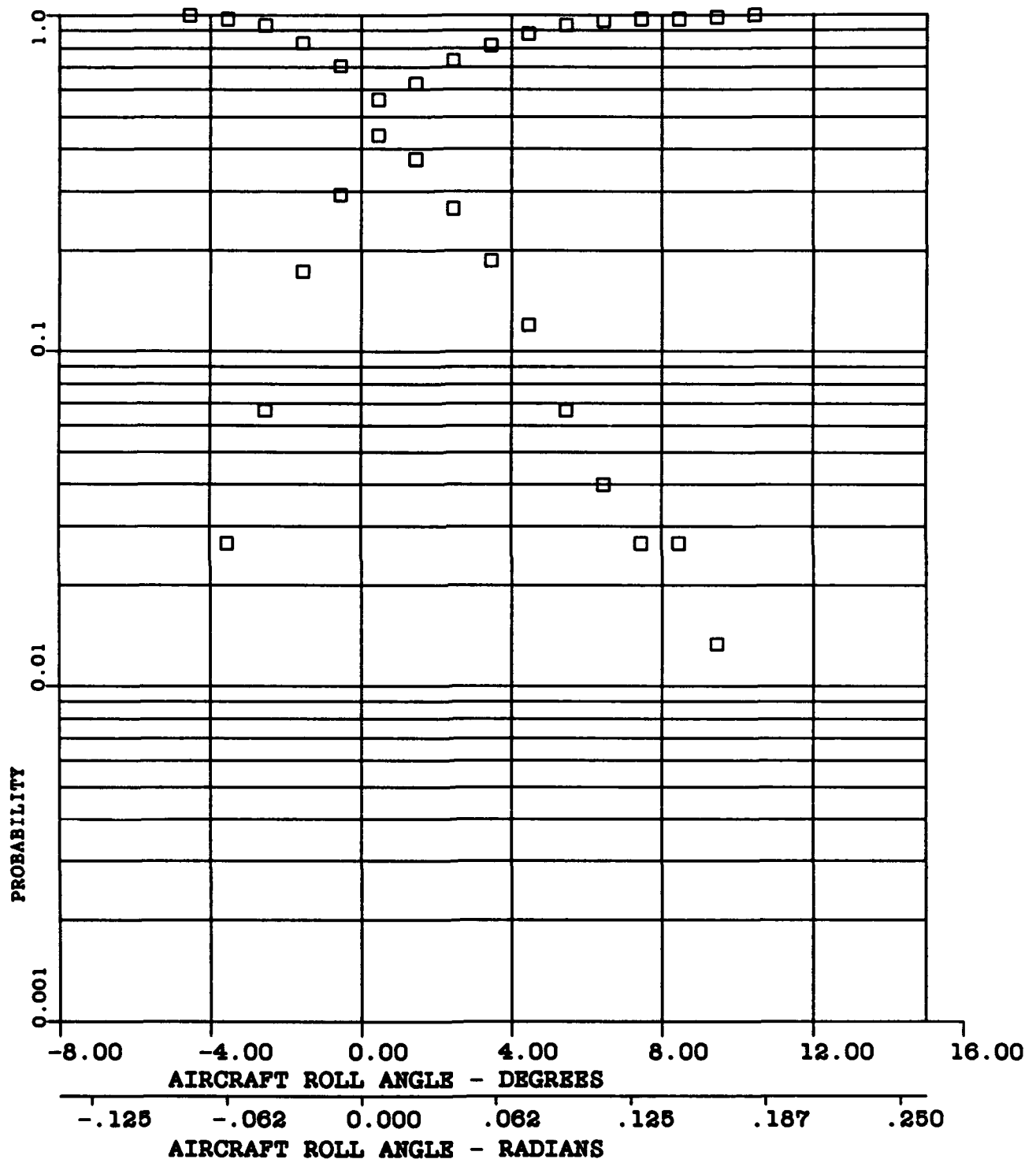


FIGURE L-28 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -.35 DEGREES (.006 RADIANS)

A3-.41

S-2.34 DEGREES (.040 RADIANS)

A4-4.06

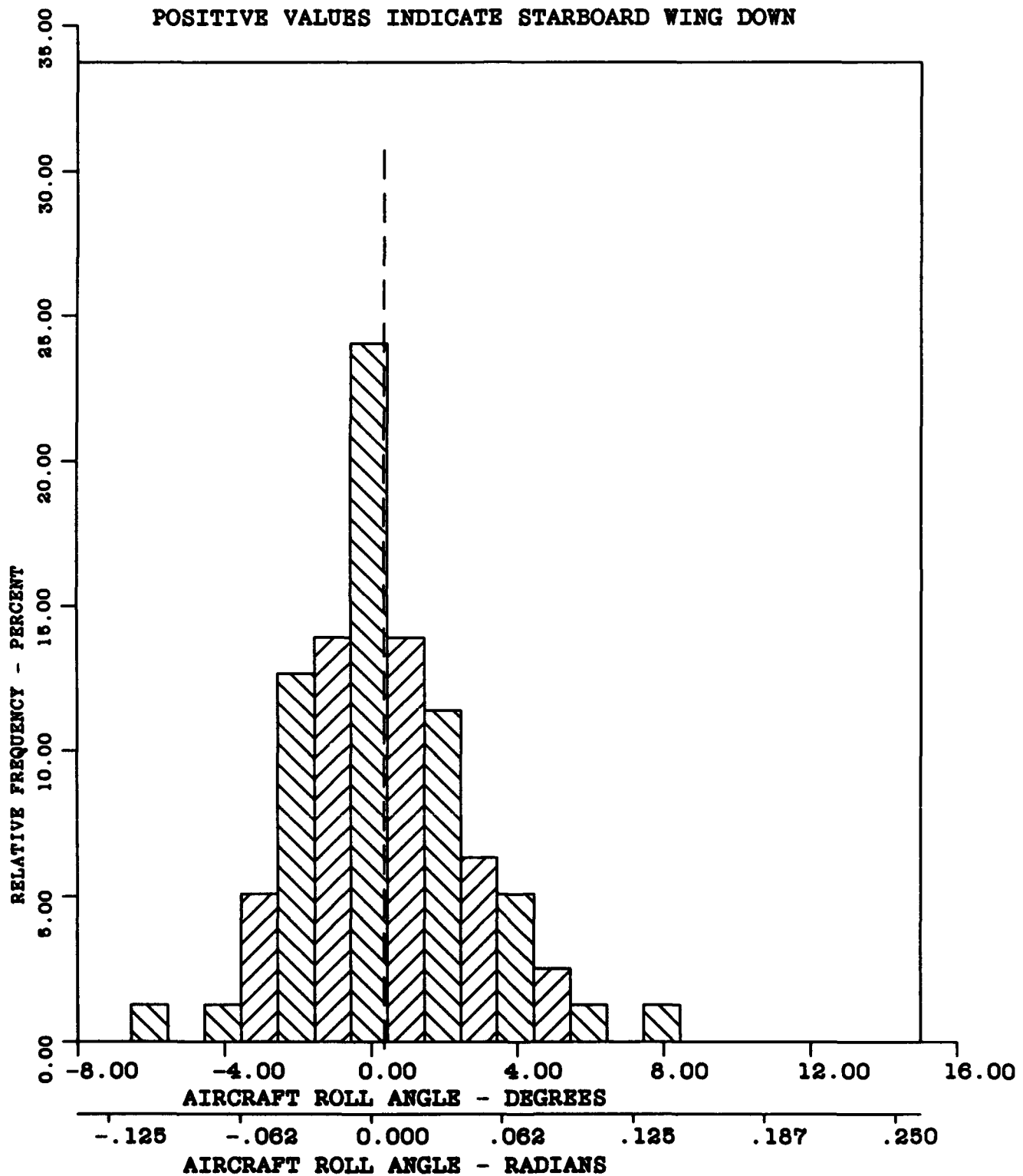


FIGURE L-29 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -.35 DEGREES (.006 RADIANS)

A3-.41

S-2.34 DEGREES (.040 RADIANS)

A4-4.06

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

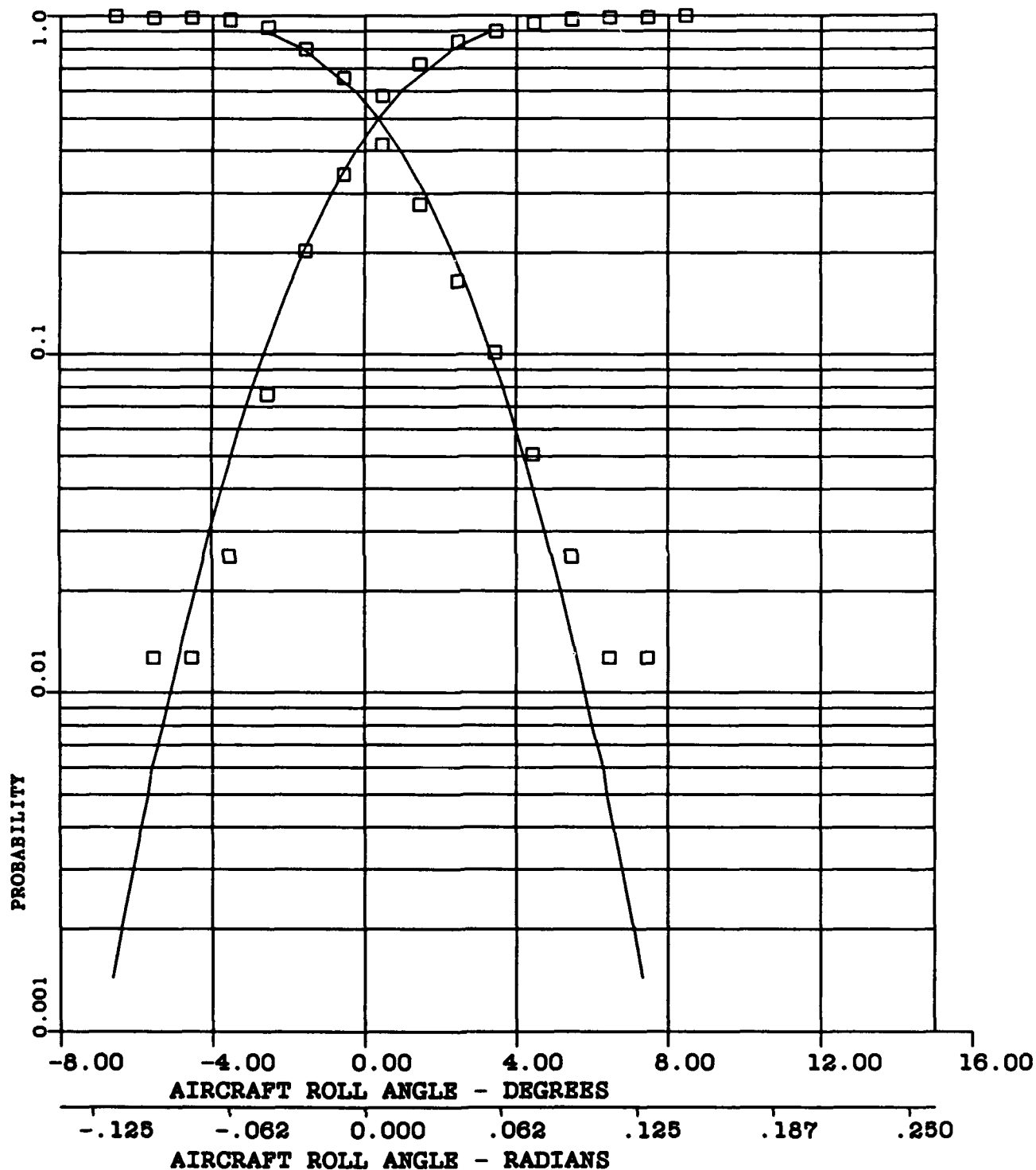


FIGURE L-30 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-4

 $\bar{X}$ -1.80 DEGREES (.031 RADIANS)

A3--.04

S-1.01 DEGREES (.017 RADIANS)

A4-1.09

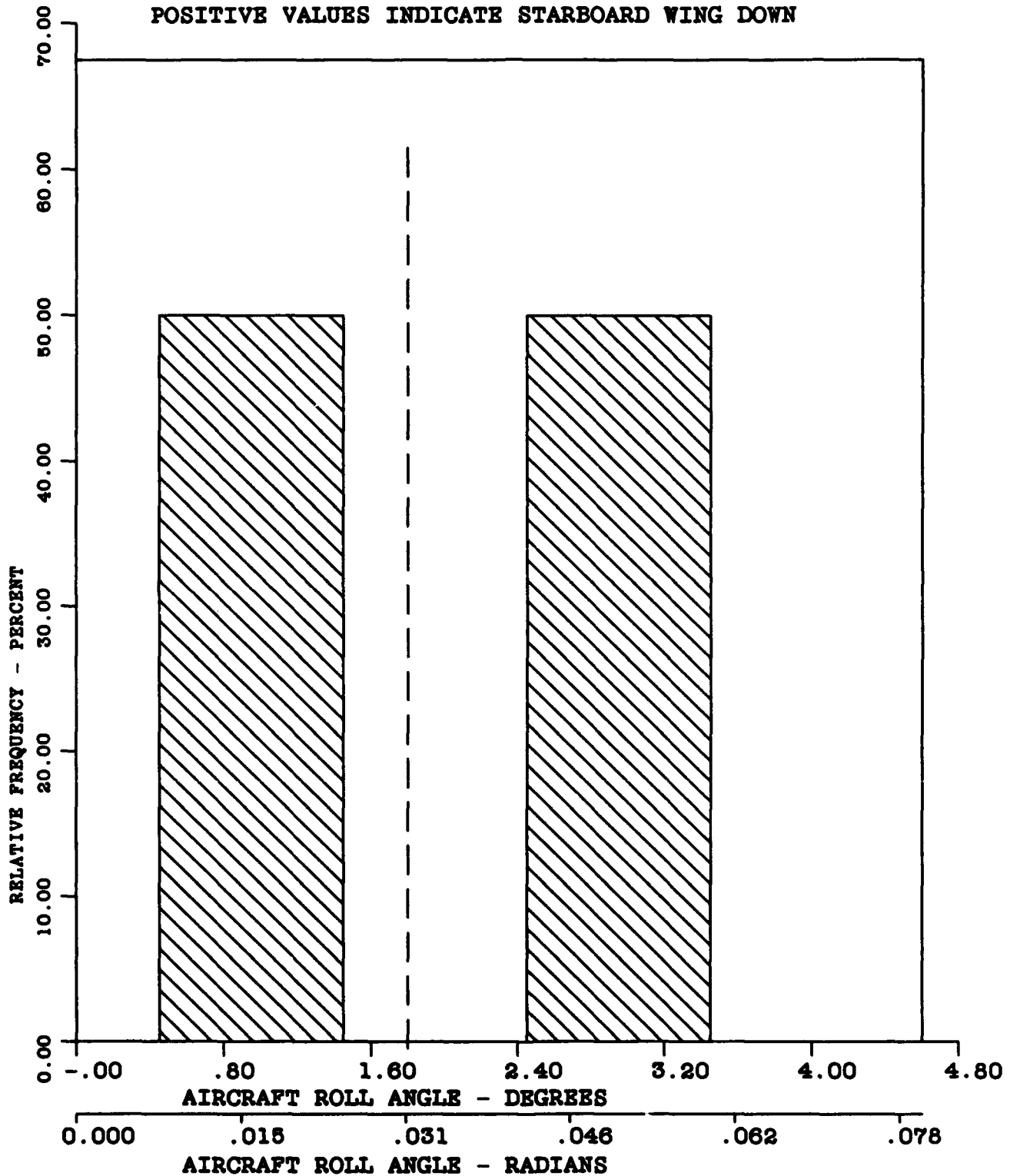


FIGURE L-31 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-4

 $\bar{X}$ -1.80 DEGREES (.031 RADIANS)

A3--.04

S-1.01 DEGREES (.017 RADIANS)

A4-1.09

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

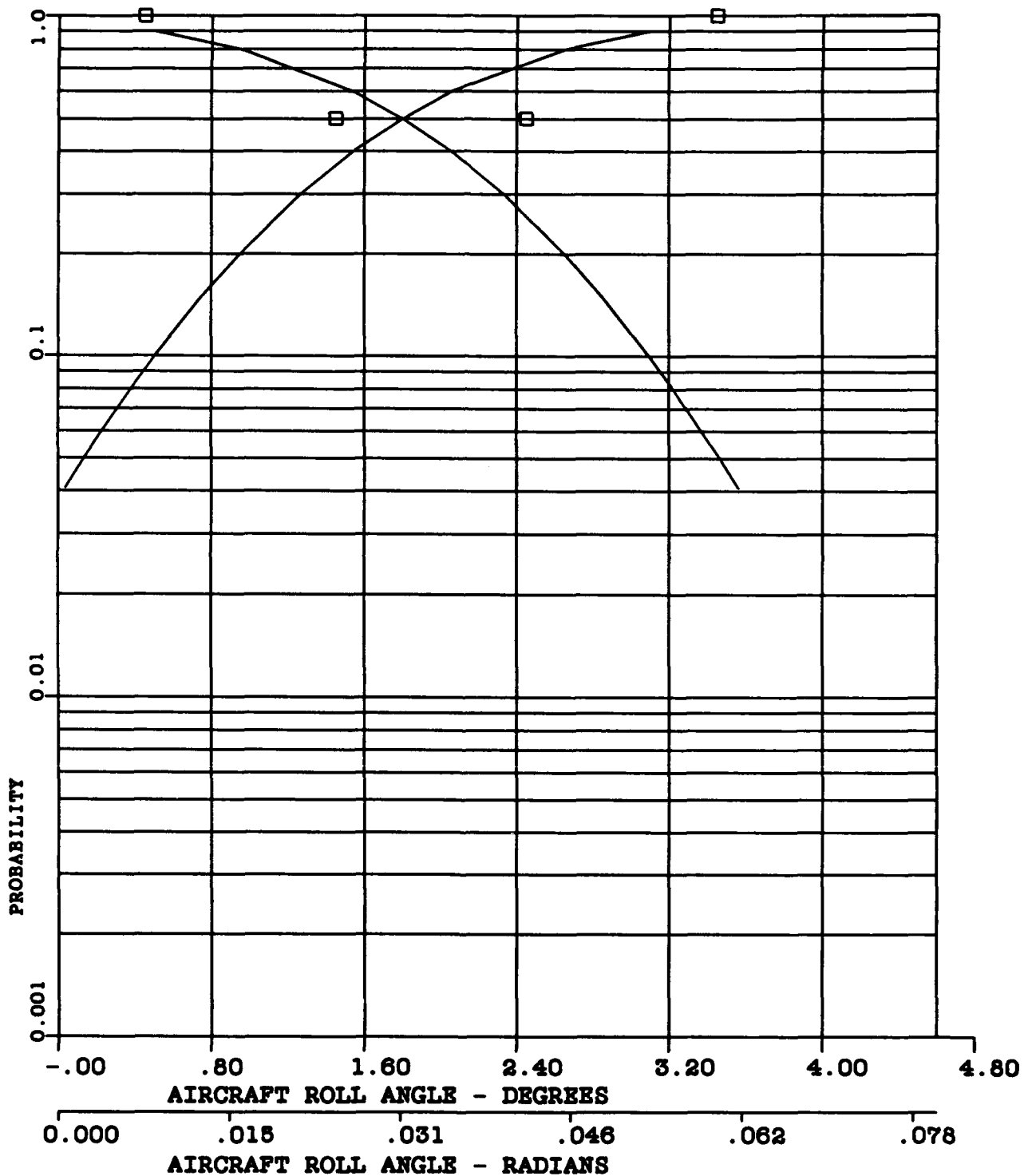


FIGURE L-32 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -251.96 FEET (76.79 METRES)

S-32.56 FEET (9.92 METRES)

A3--.37

A4-3.23

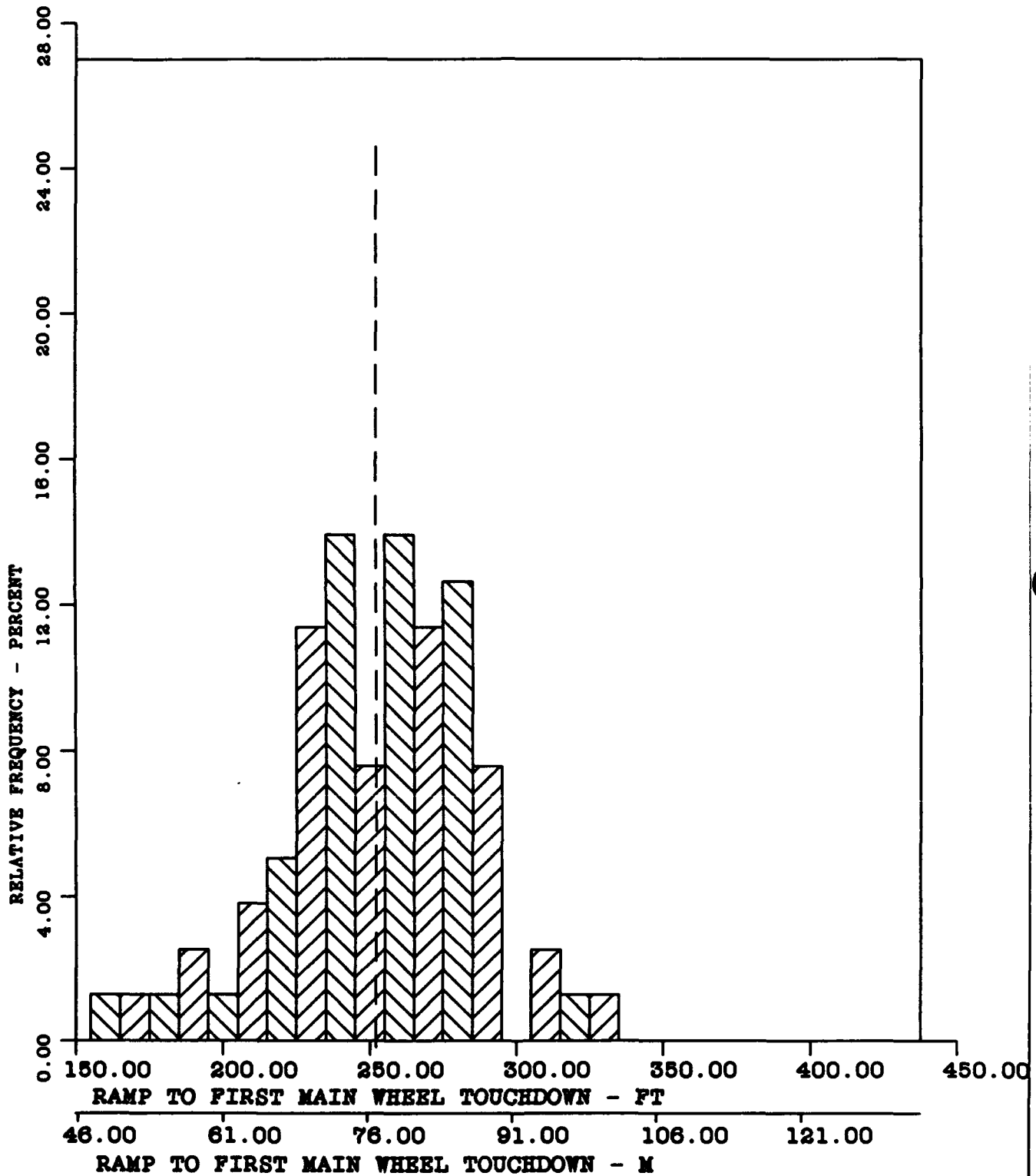


FIGURE L-33 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -11.08 FEET (-3.37 METRES)

A3--.29

S-3.61 FEET (1.10 METRES)

A4-2.62

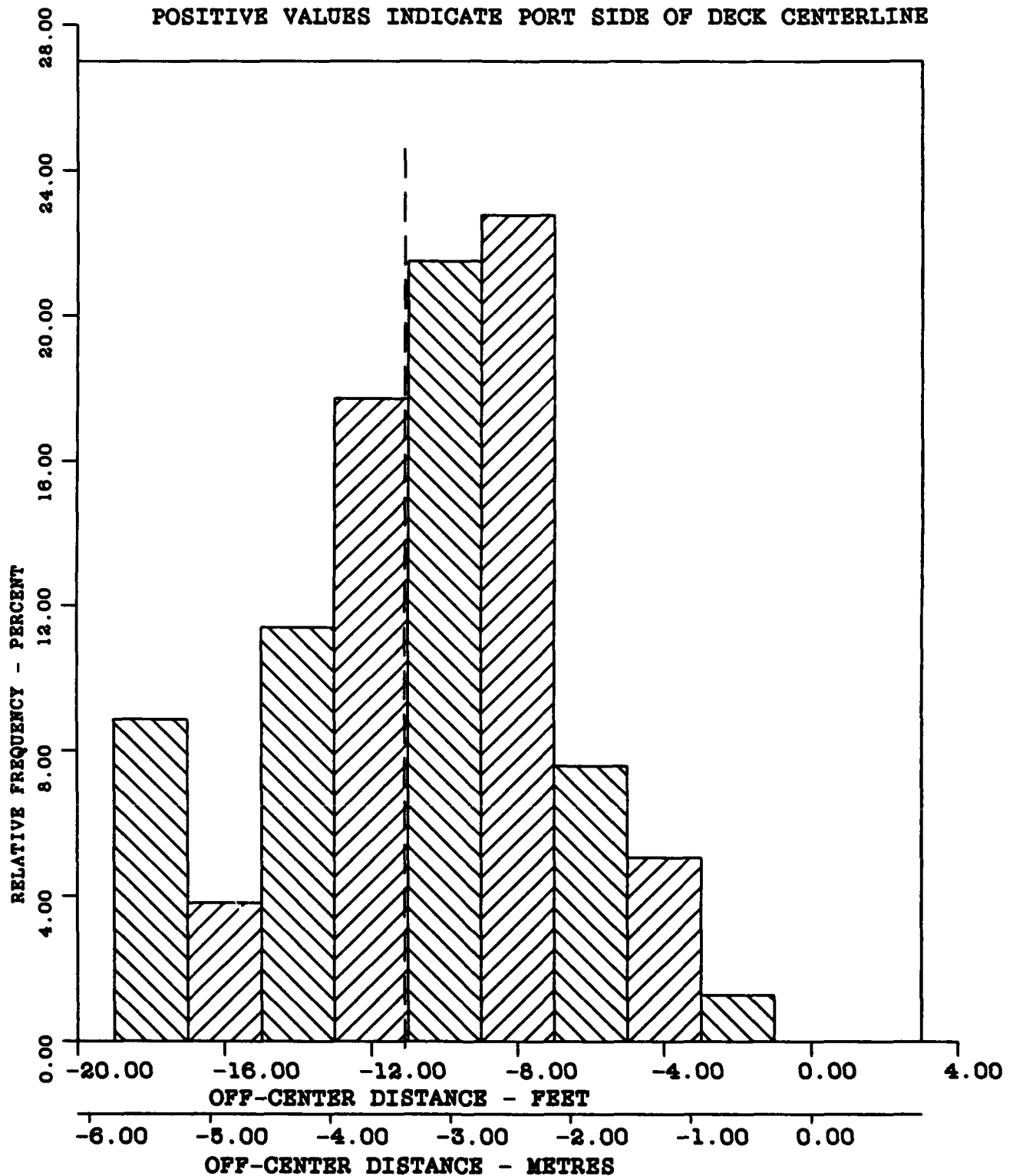


FIGURE L-34 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79  $\bar{X}$ -251.96 FEET (76.79 METRES)

A3--.37

S-32.86 FEET (9.92 METRES)

A4-3.23

CURVE FITTED - NORMAL

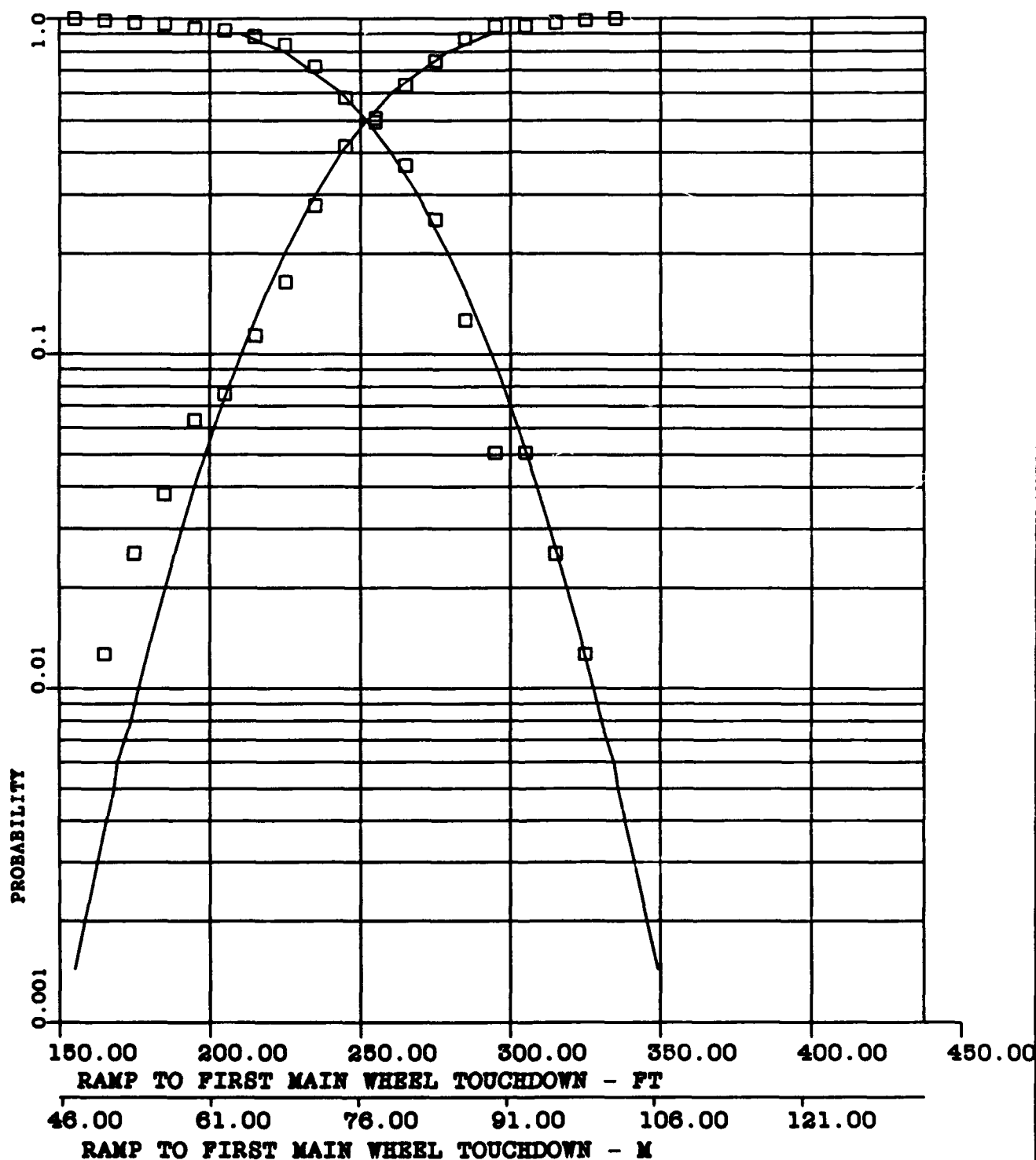


FIGURE L-35 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -11.08 FEET (-3.37 METRES)

A3--.29

S-3.61 FEET (1.10 METRES)

A4-2.62

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

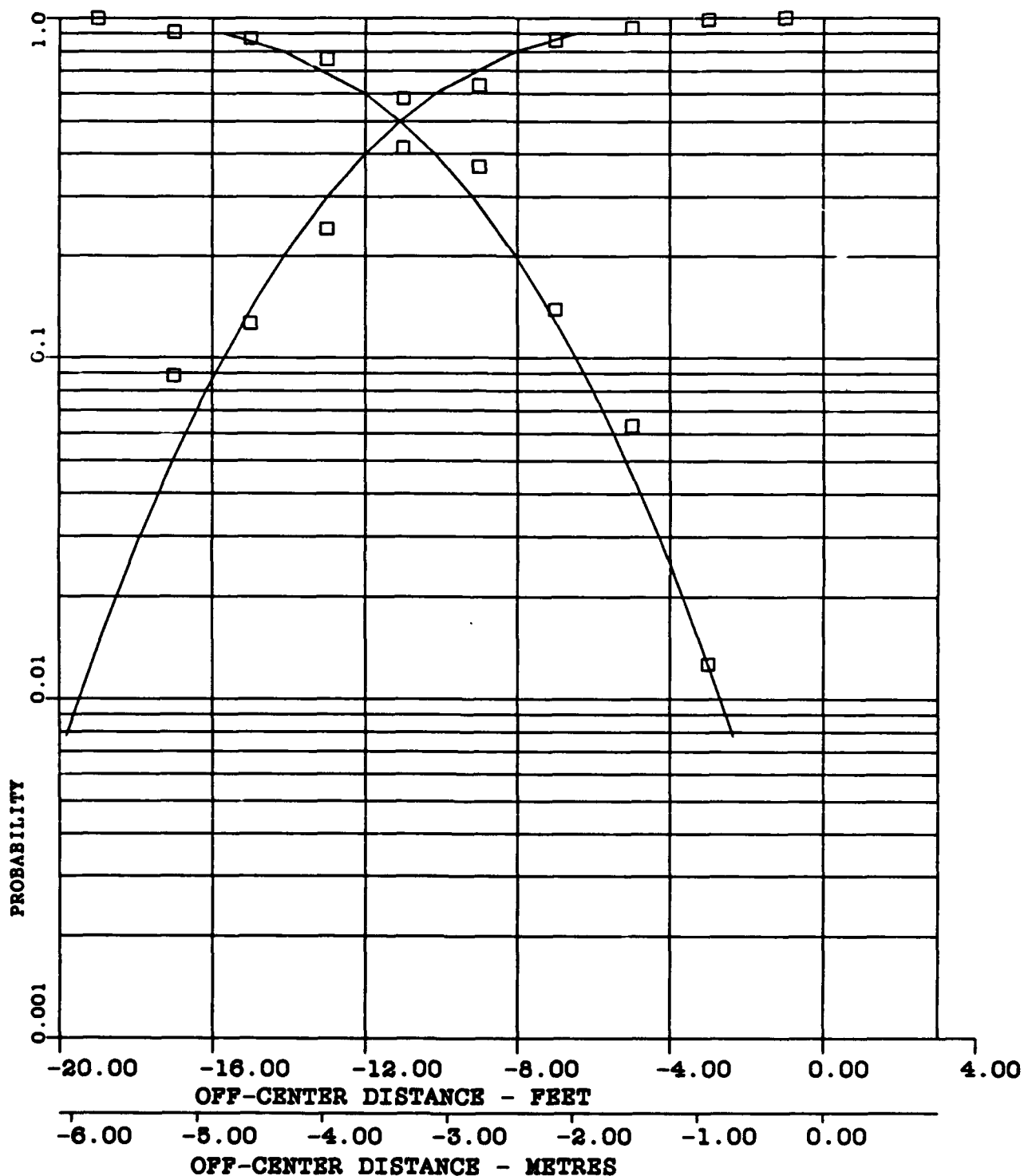


FIGURE L-36 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-65

 $\bar{X}$ -2.55

S-.68

A3-.53

A4-2.60

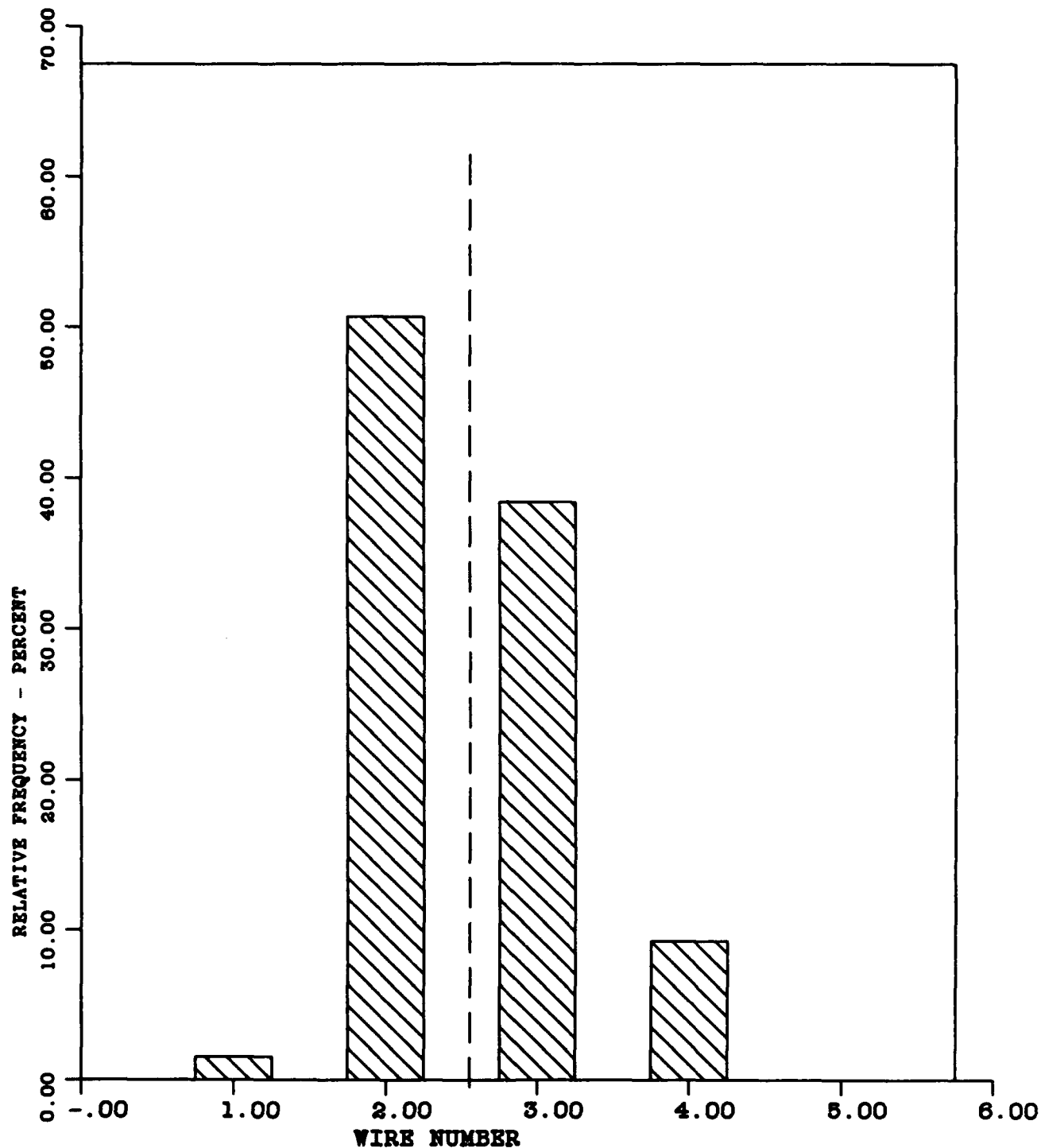


FIGURE L-37 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -2.93 DEGREES (.051 RADIANS)

A3--.04

S-.75 DEGREES (.013 RADIANS)

A4-2.80

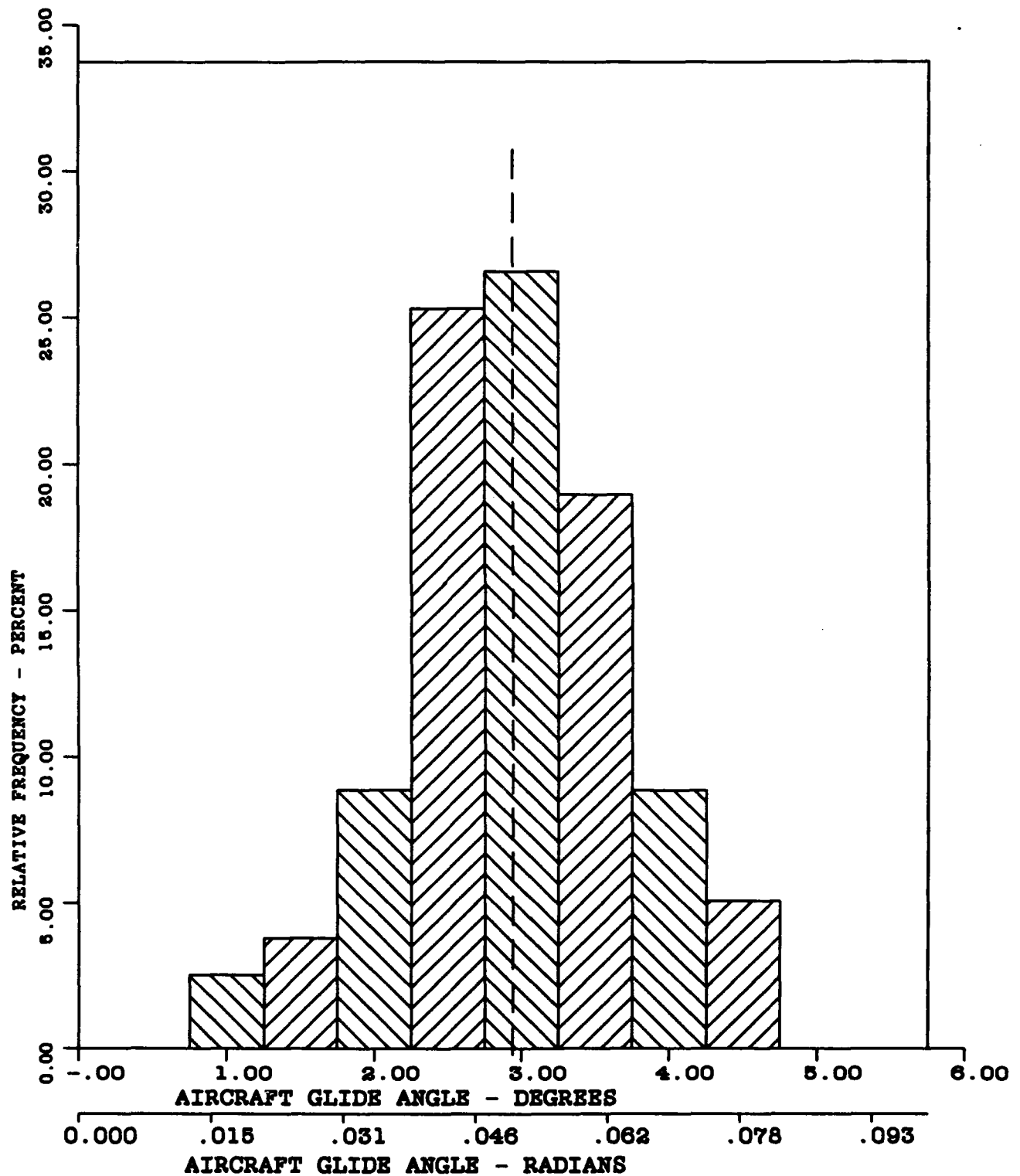


FIGURE L-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-75

 $\bar{X}$ -2.69 DEGREES (.047 RADIANS)

S-.49 DEGREES (.008 RADIANS)

A3-.53

A4-3.44

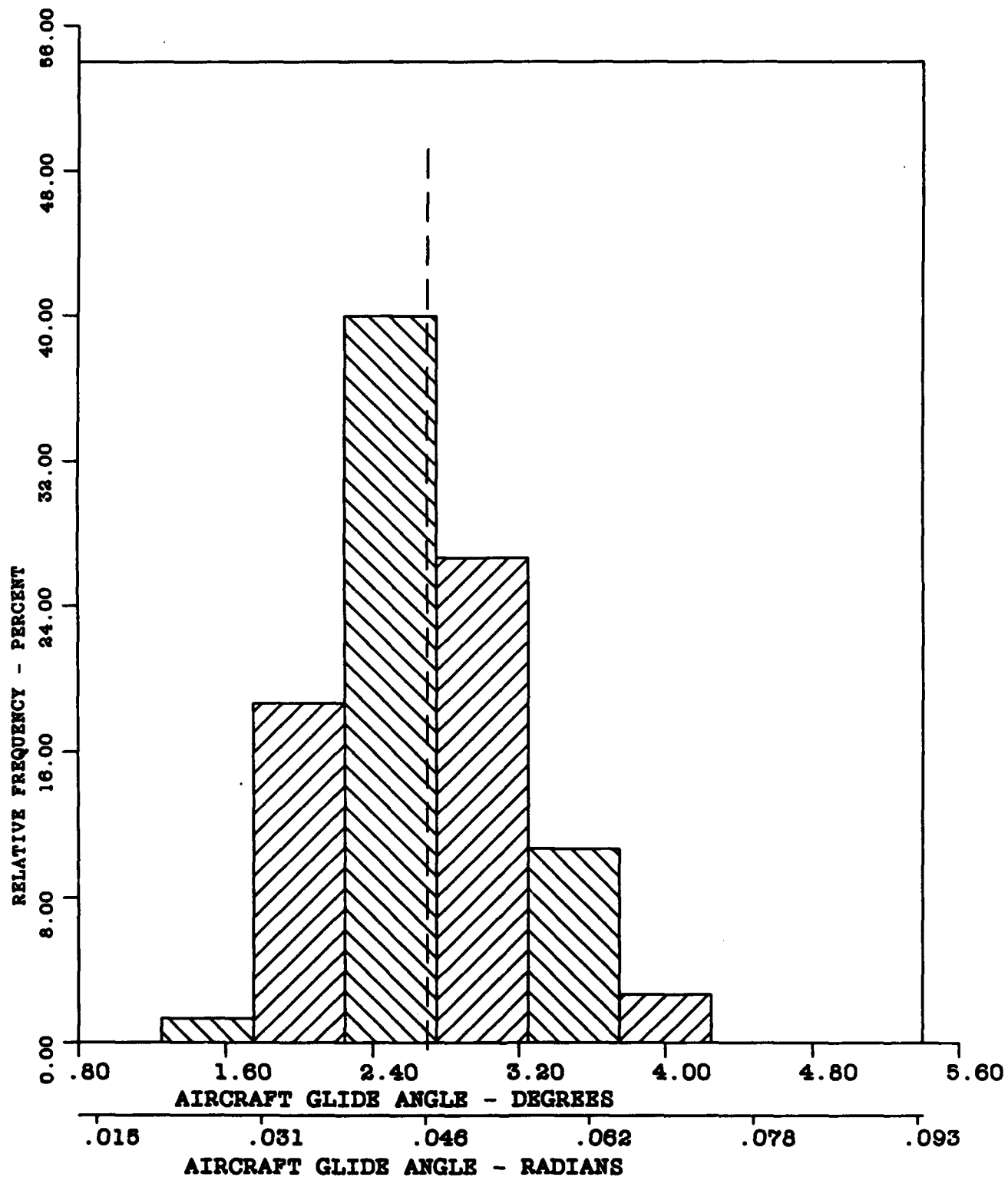


FIGURE L-39 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-75

 $\bar{X}$ -9.44 FEET (2.87 METRES)

A3-.31

S-2.56 FEET (.78 METRES)

A4-2.65

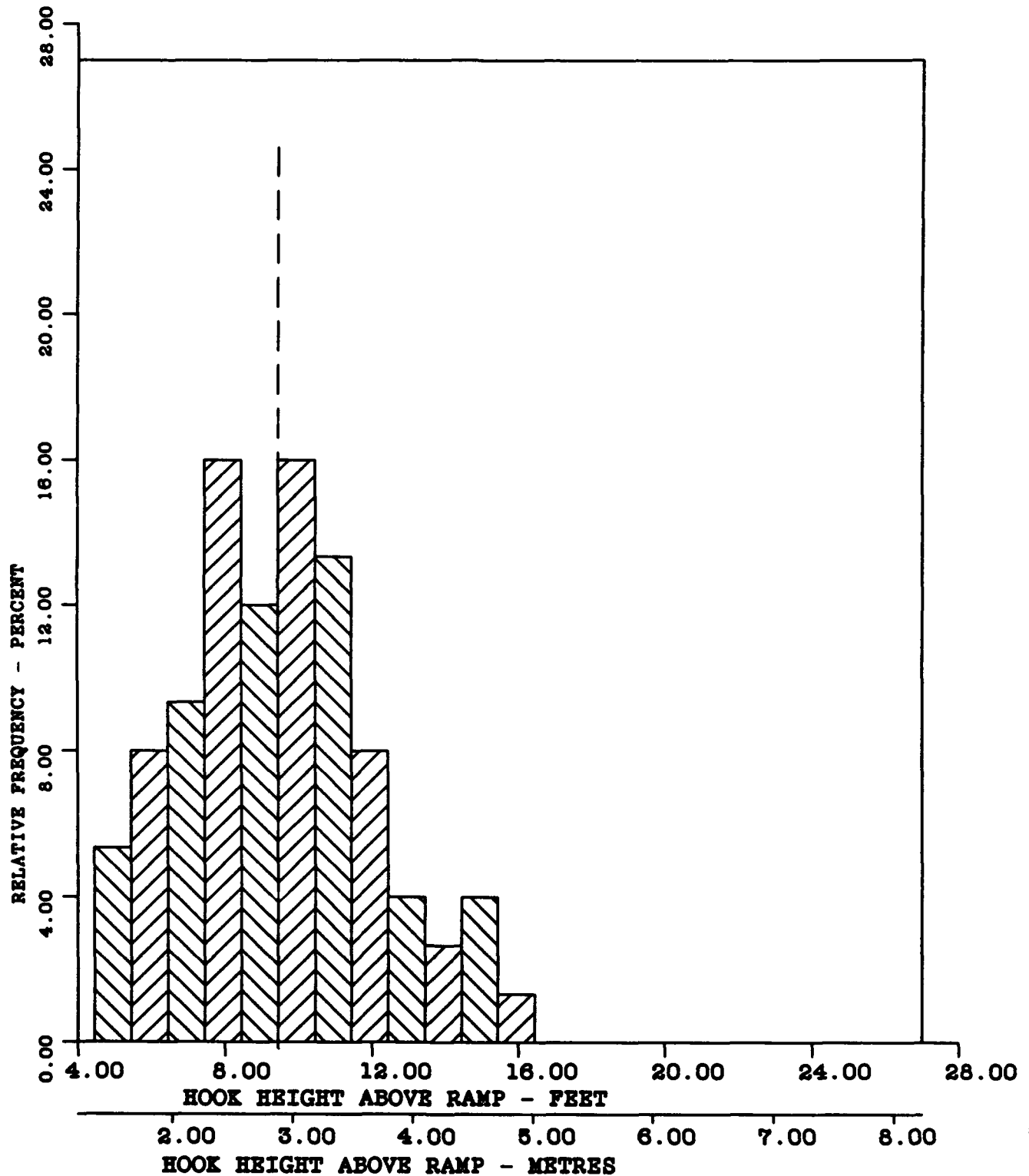


FIGURE L-40 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-75

 $\bar{X}$ -9.44 FEET (2.87 METRES)

A3-.31

S-2.56 FEET (.78 METRES)

A4-2.65

CURVE FITTED - NORMAL

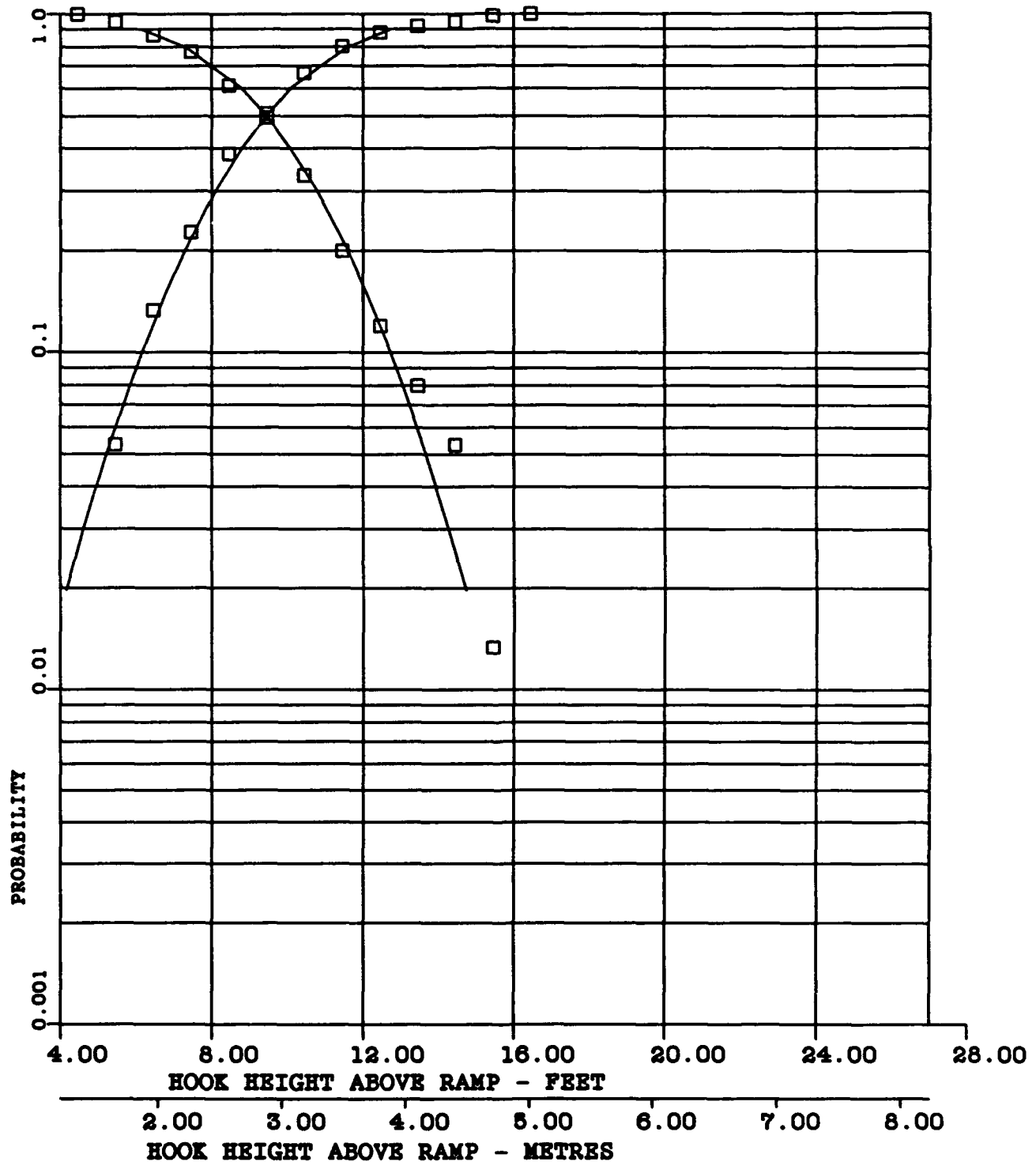


FIGURE L-41 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -83.45 KNOTS (42.92 METRES/SEC)

A3--.69

S-4.24 KNOTS (2.18 METRES/SEC)

A4-7.45

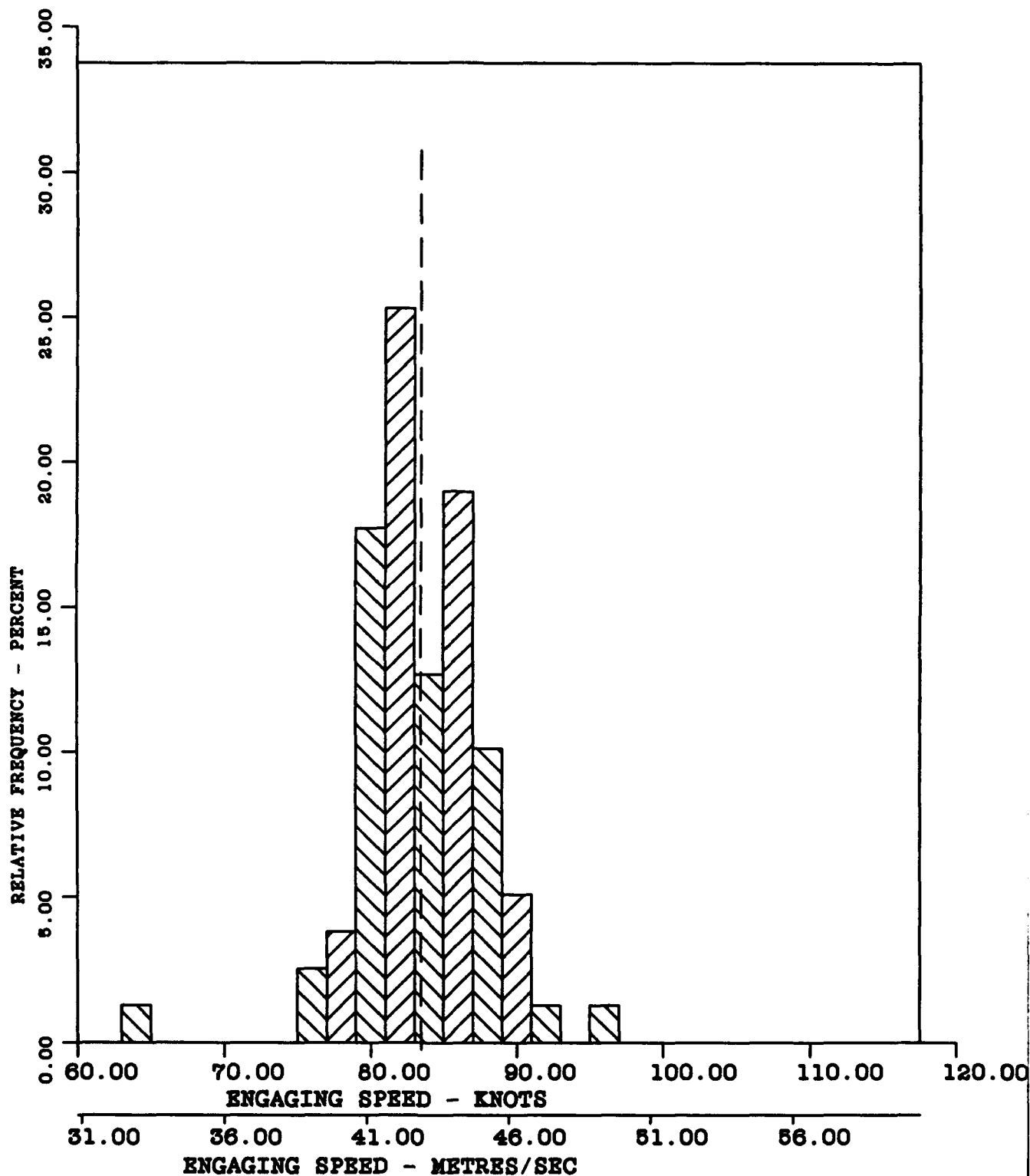


FIGURE L-42 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N=79

 $\bar{X}$ =83.45 KNOTS (42.92 METRES/SEC)

A3--.69

S=4.24 KNOTS (2.18 METRES/SEC)

A4=7.45

CURVE FITTED - PEARSON TYPE III

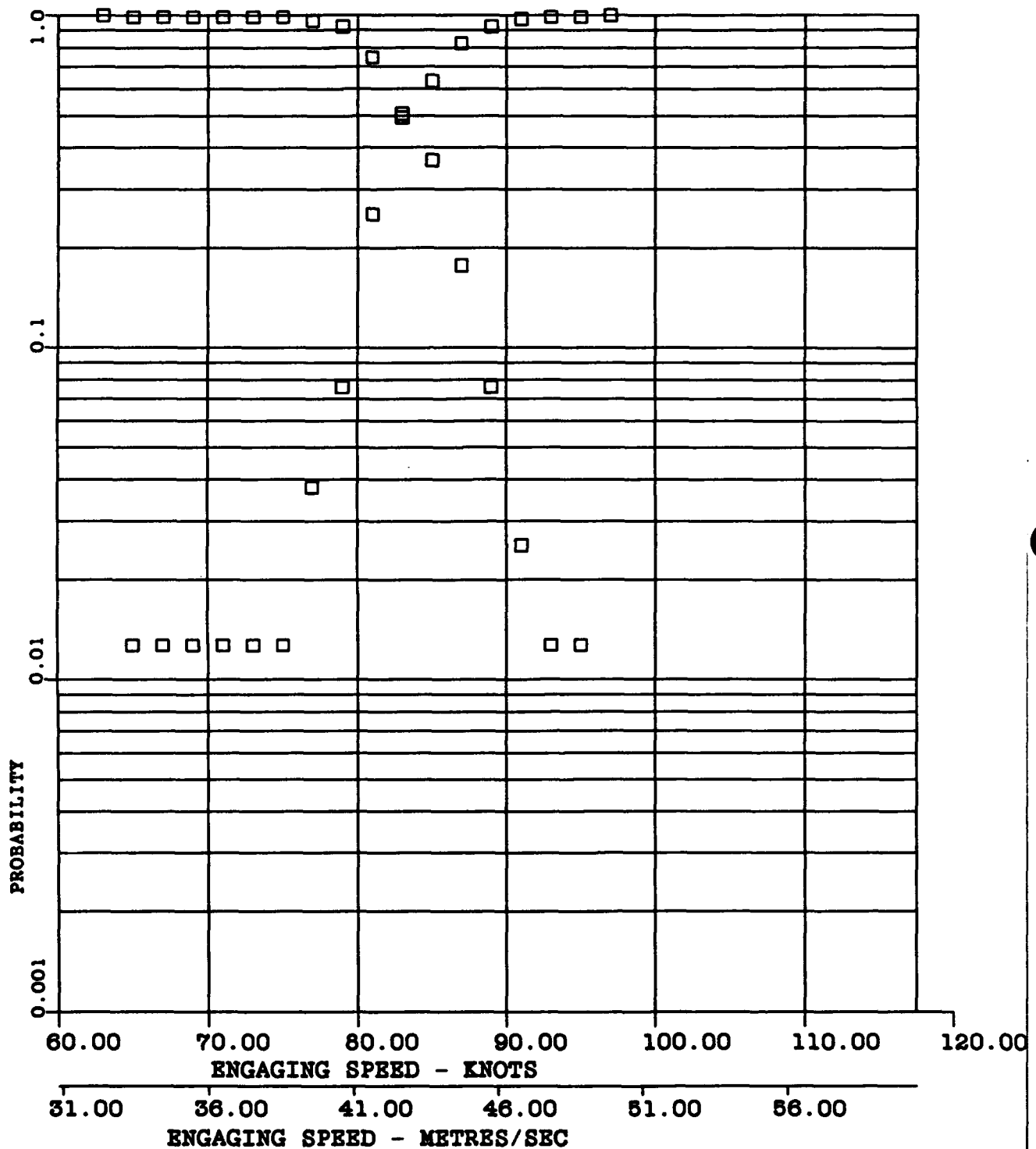


FIGURE L-43 PROBABILITY DISTRIBUTION OF ENGAGING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (.061 RADIANS)

N-78

 $\bar{X}$ -85.93 KNOTS (44.20 METRES/SEC)

A3-.29

S-1.10 KNOTS (.56 METRES/SEC)

A4-2.76

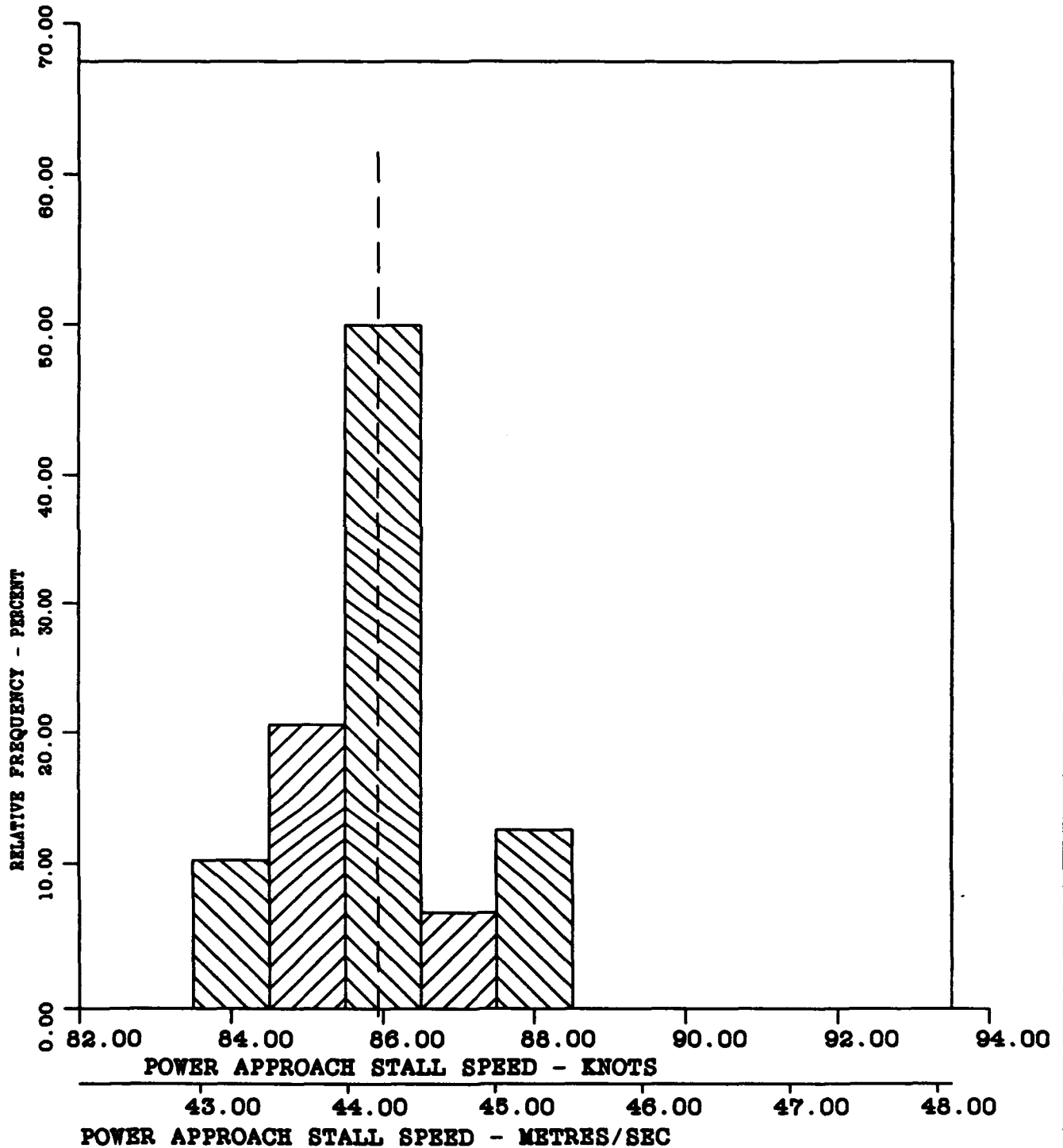


FIGURE L-44 FREQUENCY DISTRIBUTION OF POWER  
APPROACH STALL SPEED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-78

 $\bar{X}$ -1.25

S-.03

A3-.42

A4-3.61

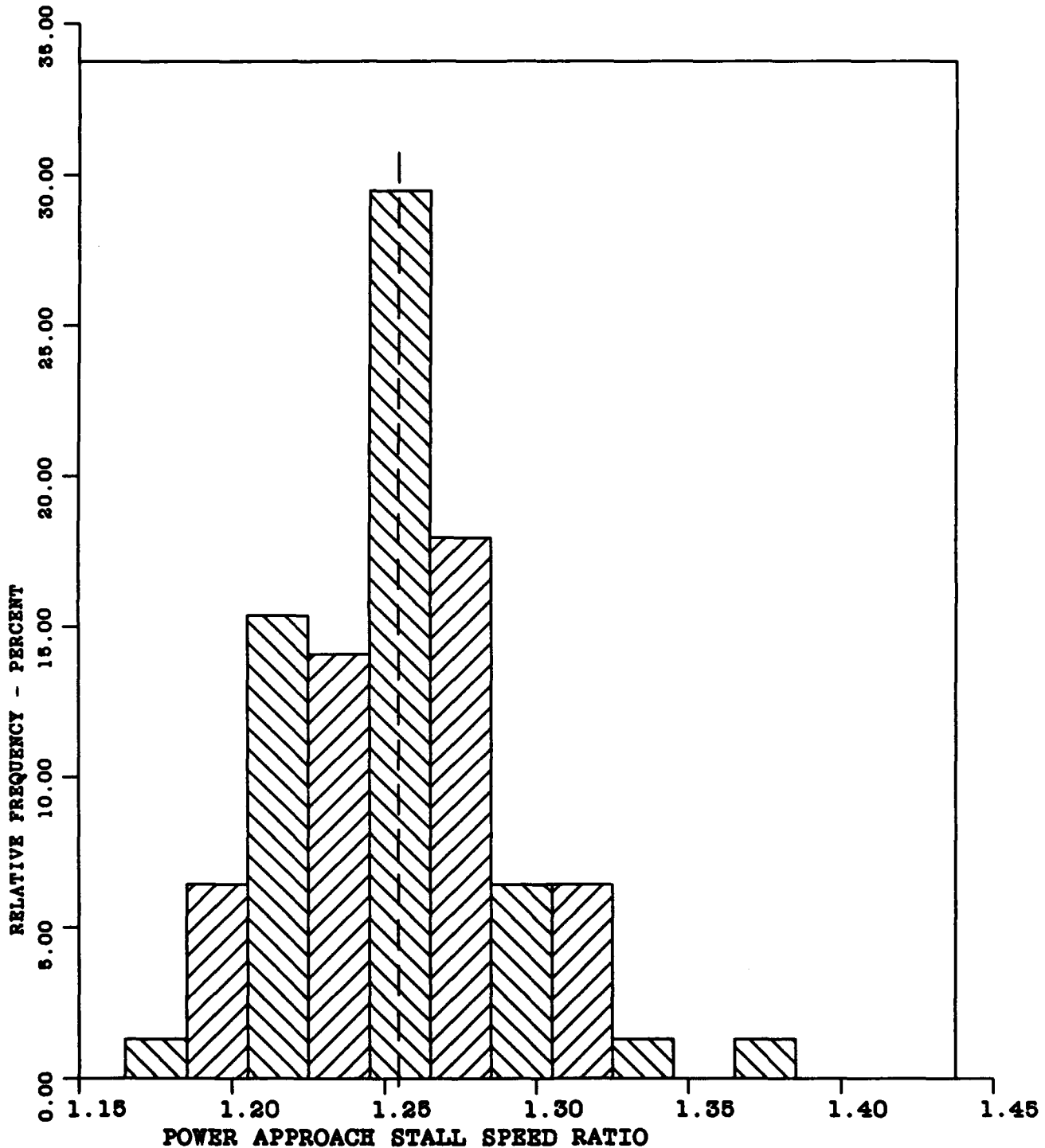


FIGURE L-45 FREQUENCY DISTRIBUTION OF POWER  
APPROACH STALL SPEED RATIO

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-68)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -.15 DEGREES (.002 RADIANS)

A3-.46

S-.76 DEGREES (.013 RADIANS)

A4-3.87

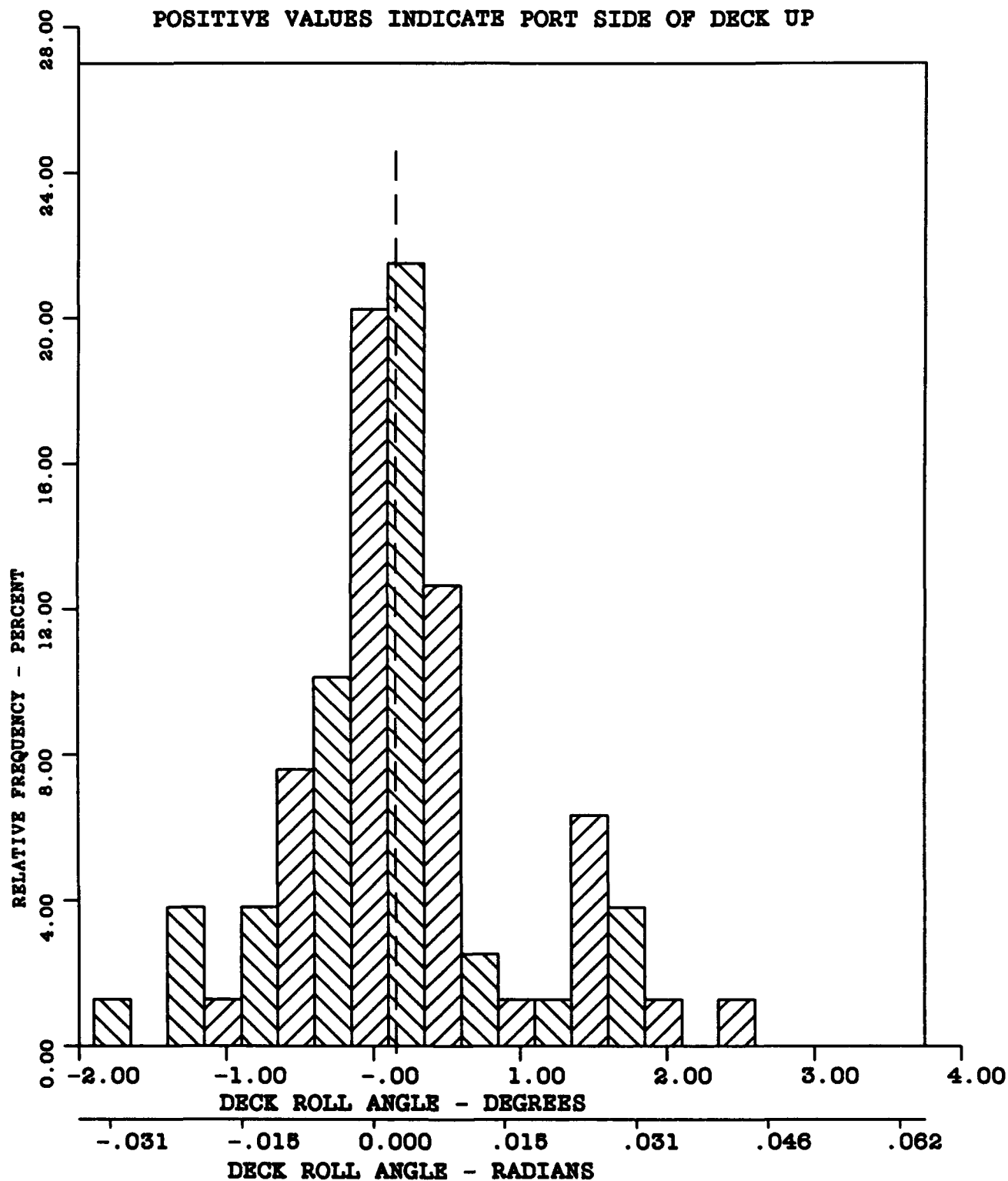


FIGURE L-46 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -.15 DEGREES (.002 RADIANS)

A3-.46

S-.76 DEGREES (.013 RADIANS)

A4-3.87

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

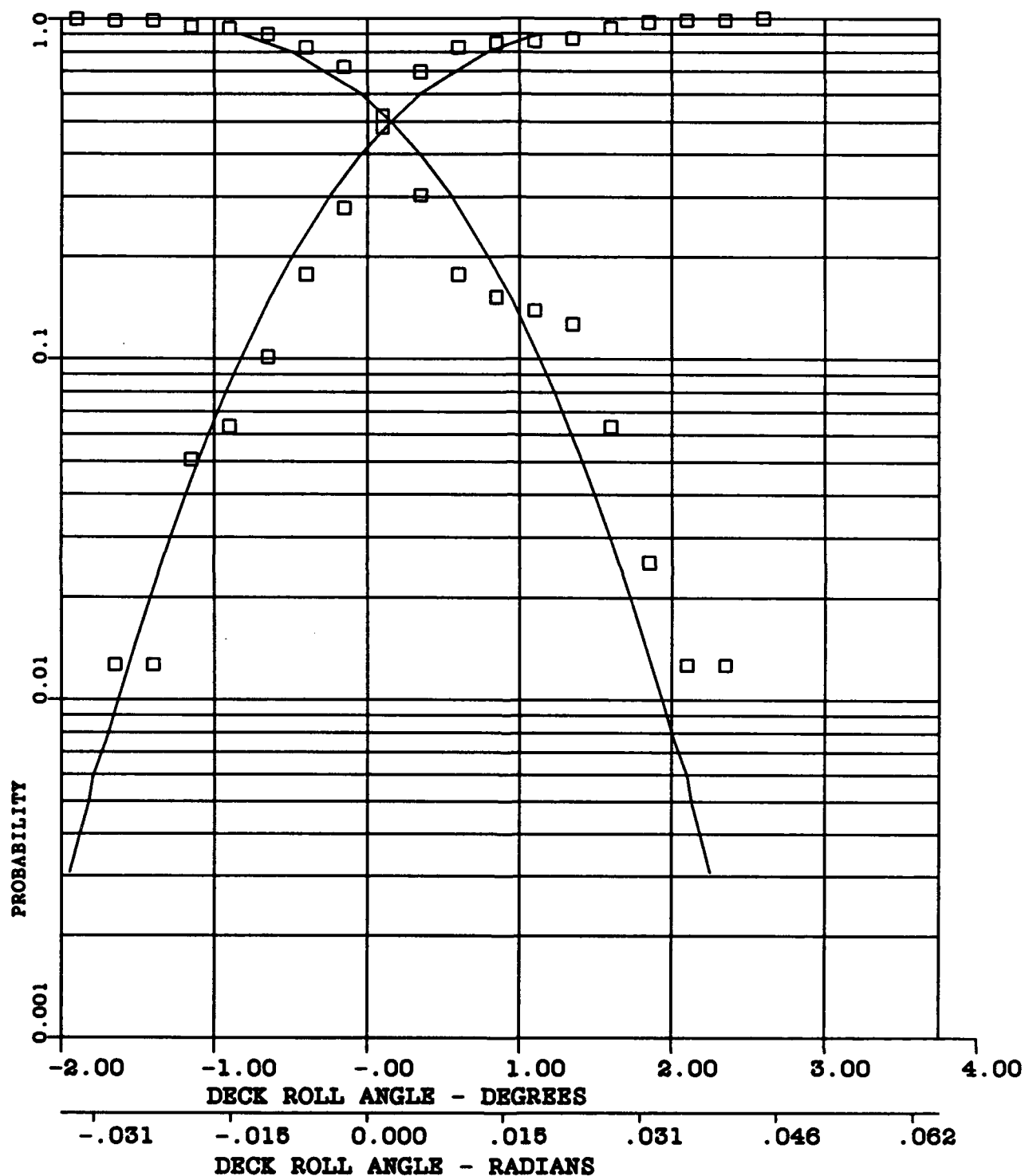


FIGURE L-47 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$  = -.12 DEGREES (-.002 RADIANS)

A3 = .28

S = .20 DEGREES (.003 RADIANS)

A4 = 3.08

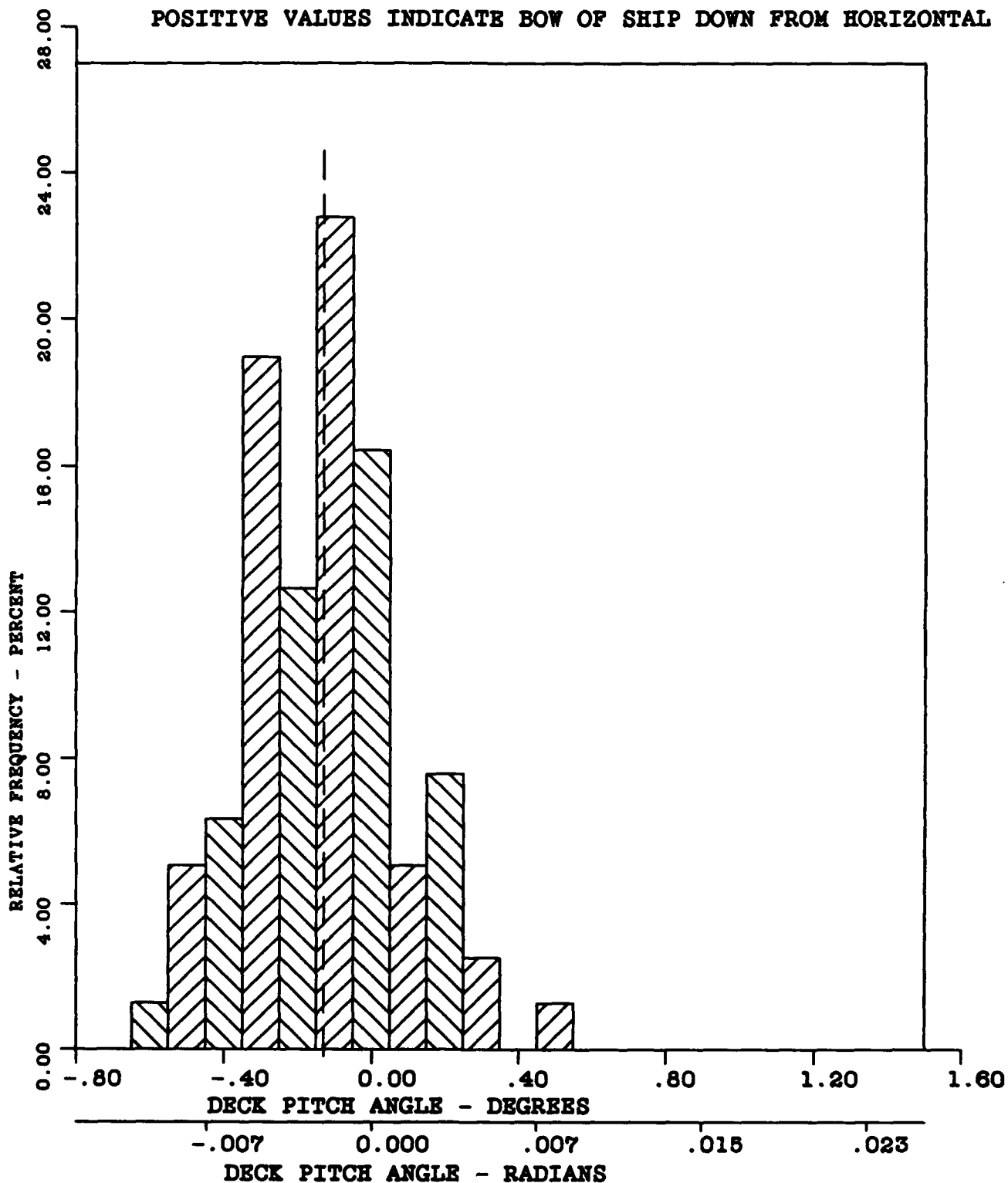


FIGURE L-48 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$  = -.12 DEGREES (-.002 RADIANS)

A3 = .28

S = .20 DEGREES (.003 RADIANS)

A4 = 3.08

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

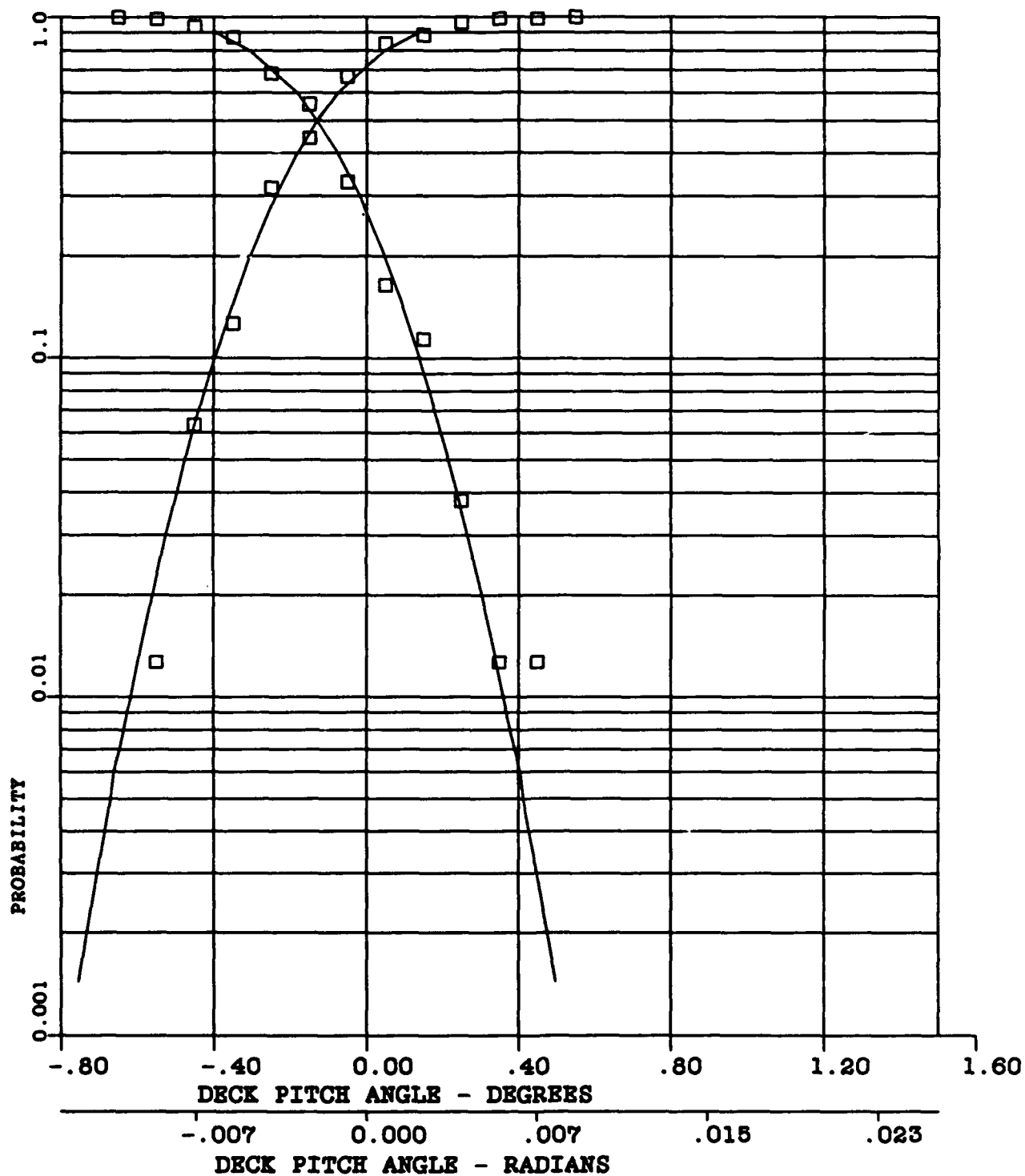


FIGURE L-49 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-78

 $\bar{X}$ -43302.38 POUNDS (19641.96 KILOGRAMS)

A3-.33

S-1115.57 POUNDS (506.02 KILOGRAMS)

A4-2.77

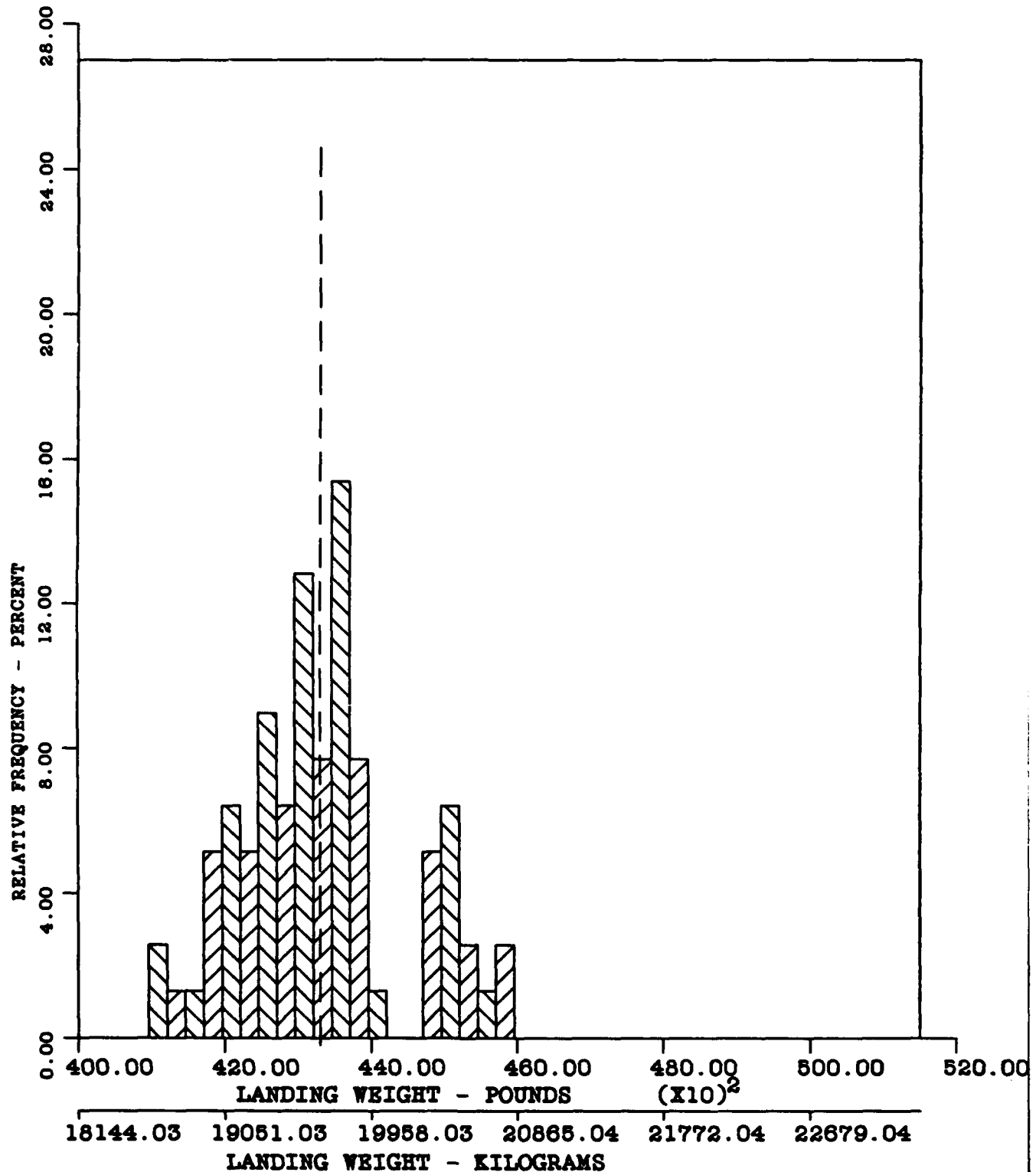


FIGURE L-50 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -.26 DEG/SEC (.004 RAD/SEC)

A3--.33

S-4.94 DEG/SEC (.086 RAD/SEC)

A4-3.74

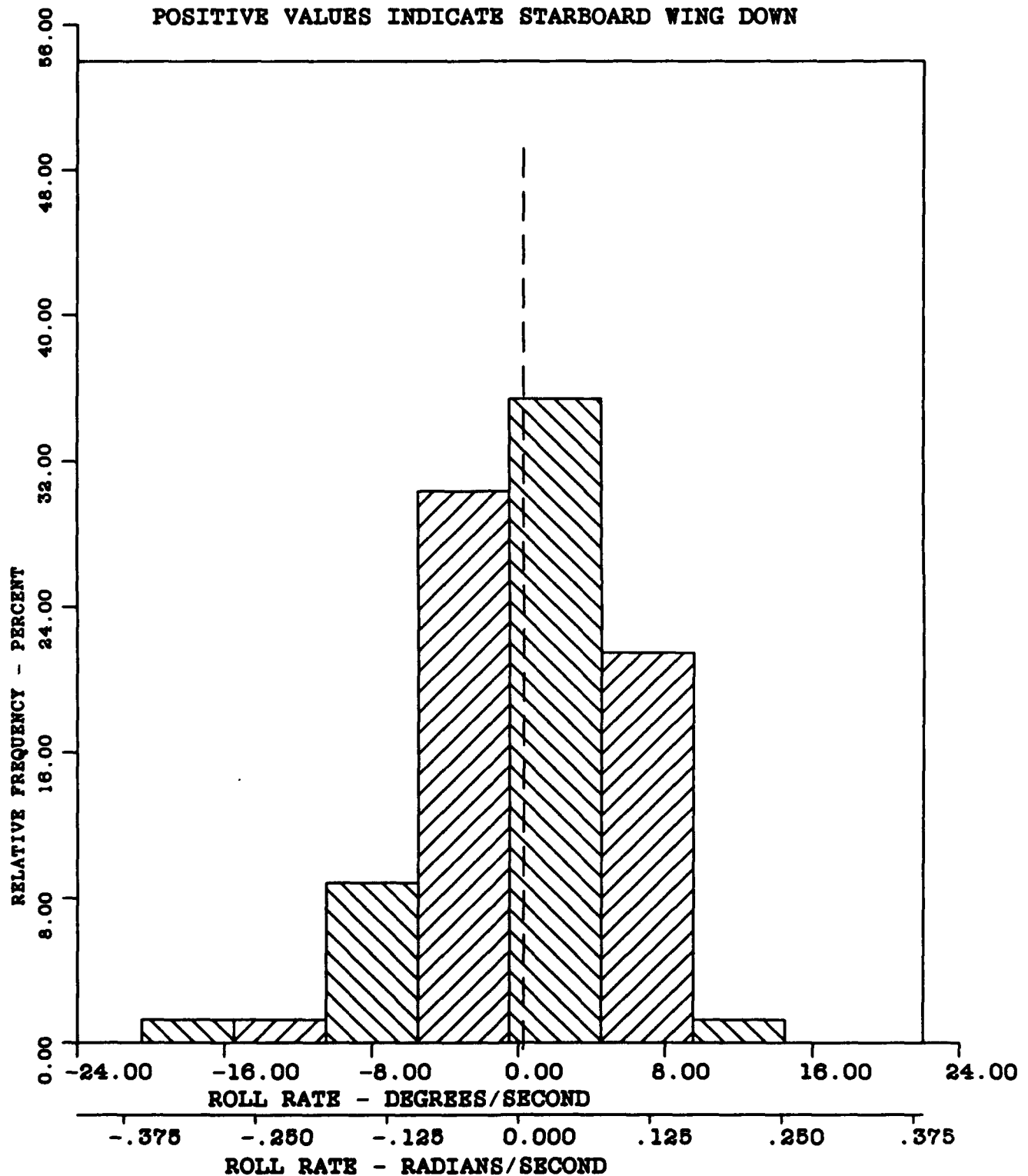


FIGURE L-51 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -.26 DEG/SEC (.004 RAD/SEC)

A3--.33

S-4.94 DEG/SEC (.086 RAD/SEC)

A4-3.74

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

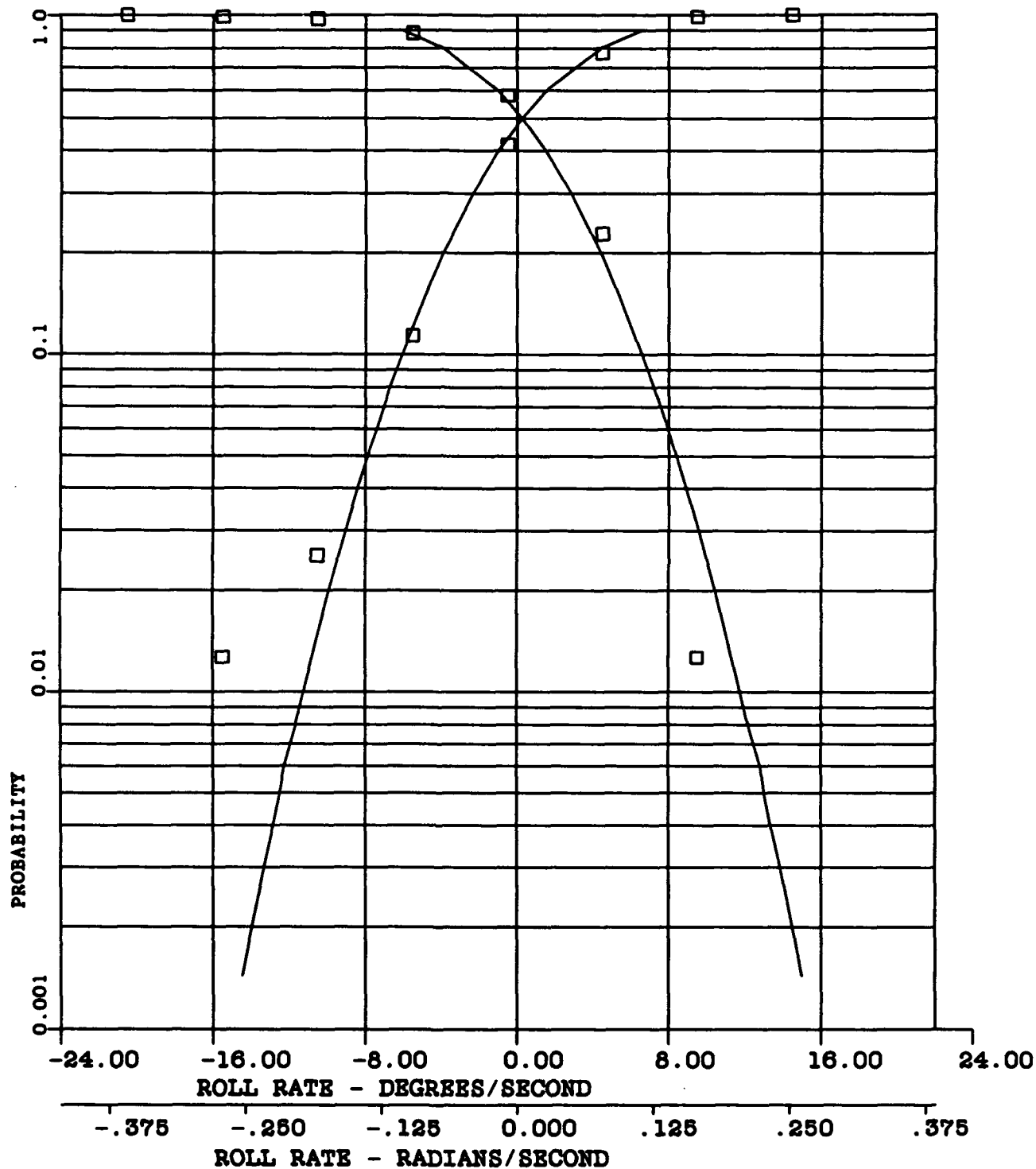


FIGURE L-52 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79  $\bar{X}$  = -.13 DEG/SEC (-.002 RAD/SEC)

A3-.37

S-2.22 DEG/SEC (.038 RAD/SEC)

A4-4.79

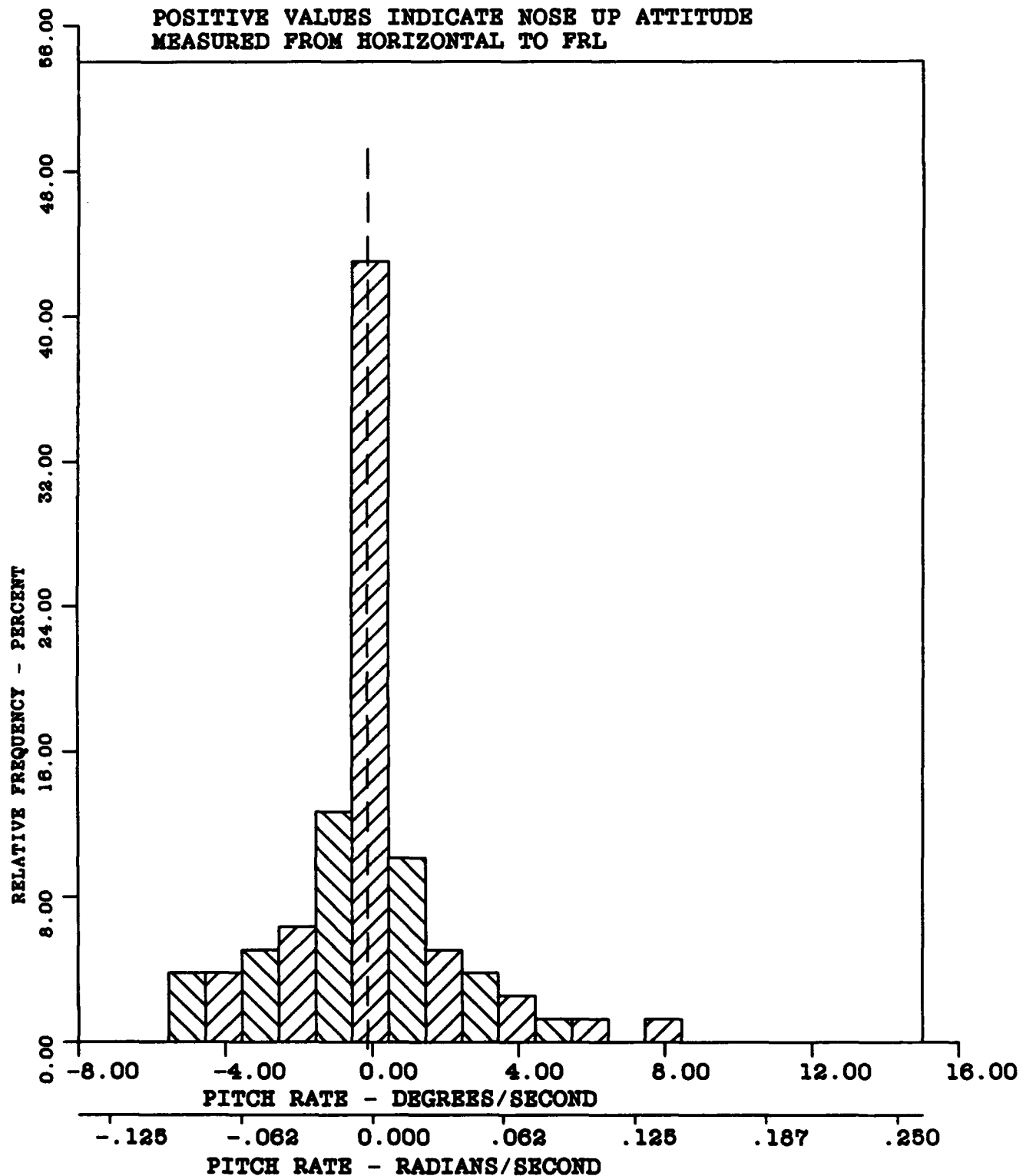


FIGURE L-53 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

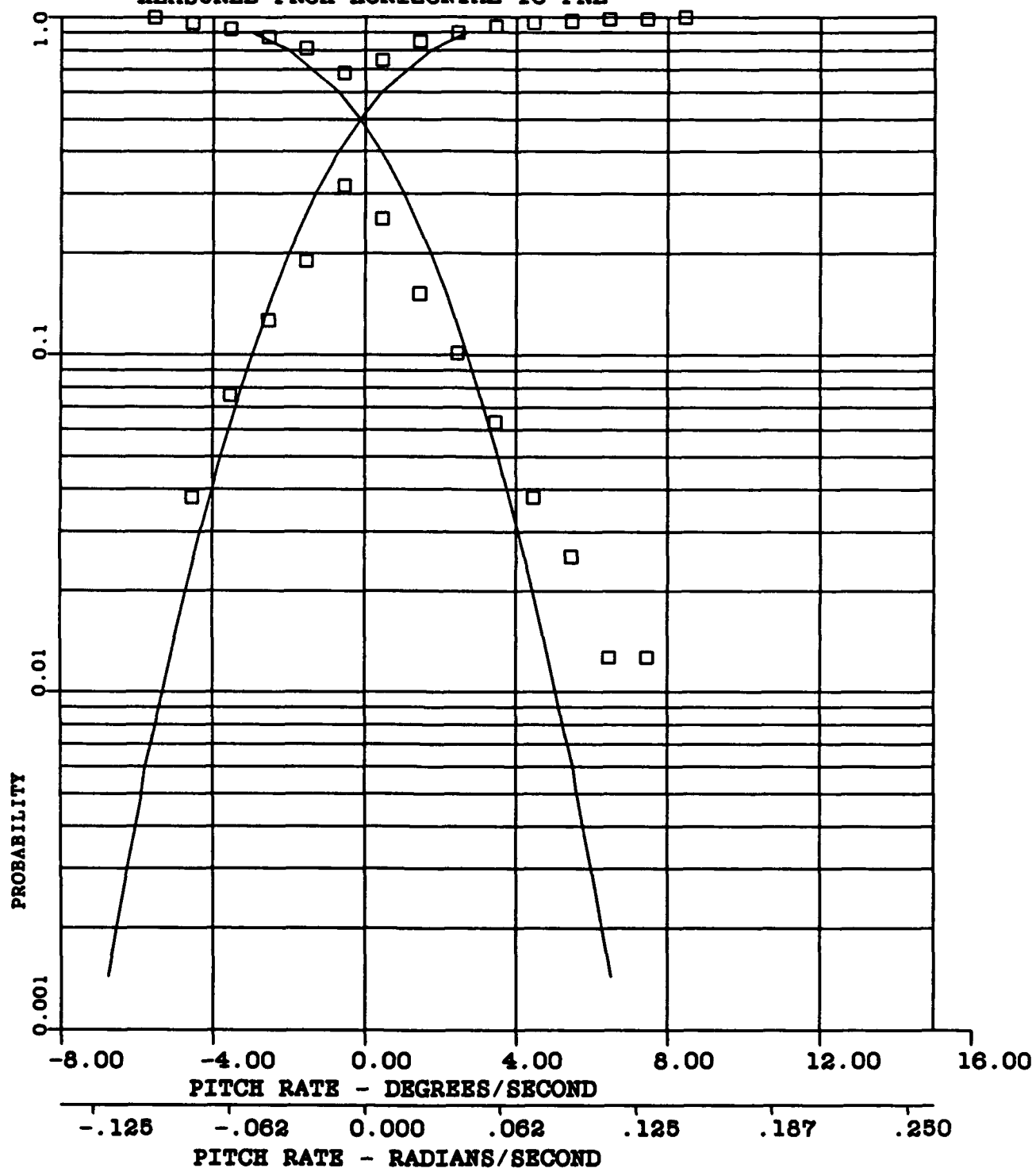
 $\bar{X} = -.13 \text{ DEG/SEC } (-.002 \text{ RAD/SEC})$ 

A3-.37

S-2.22 DEG/SEC (.038 RAD/SEC)

A4-4.79

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -2.56 DEGREES (-.044 RADIANS)

A3-.09

S-1.64 DEGREES (.028 RADIANS)

A4-3.62

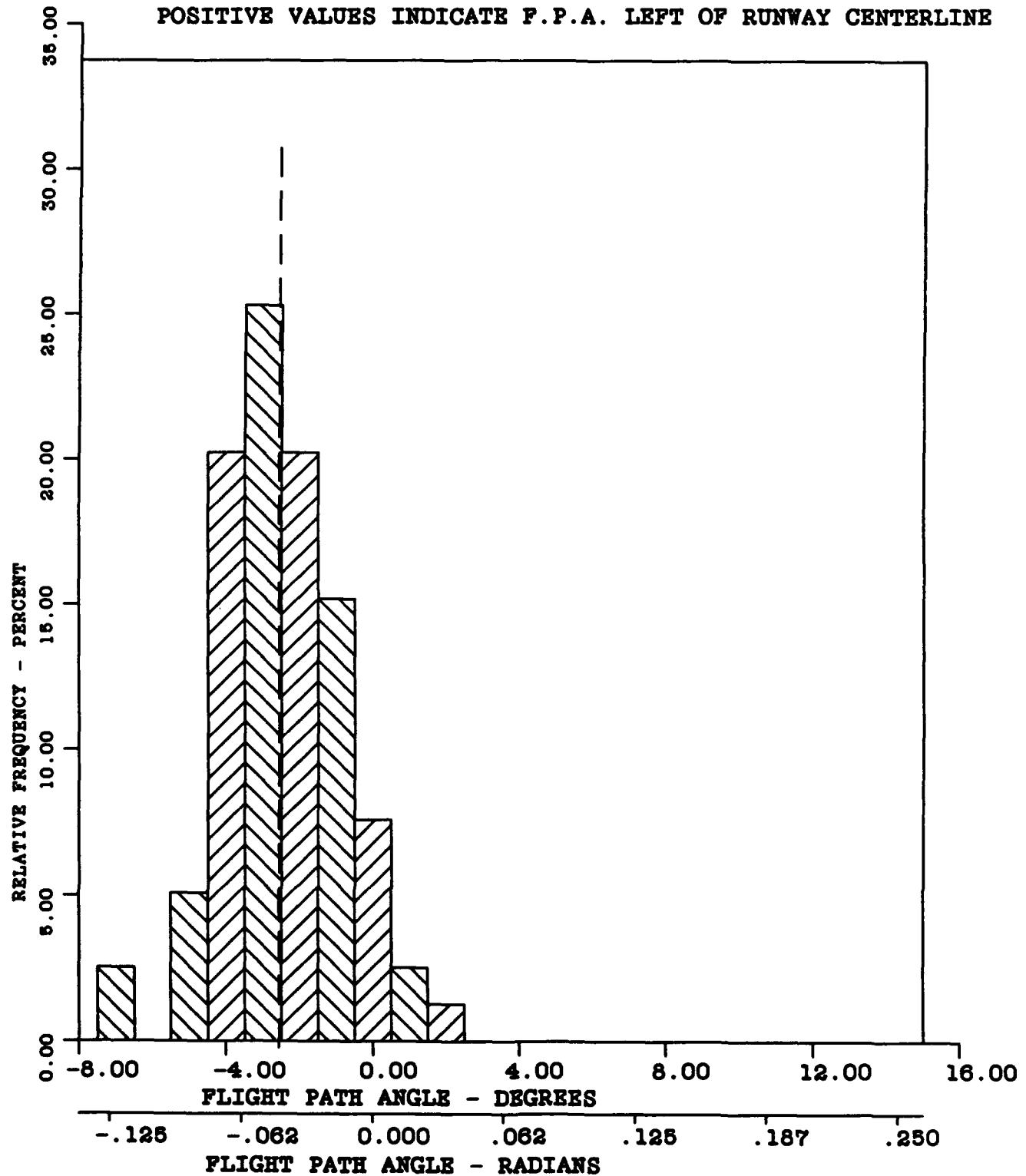


FIGURE L-55 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -2.56 DEGREES (-.044 RADIANS)

A3-.09

S-1.64 DEGREES (.028 RADIANS)

A4-3.62

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

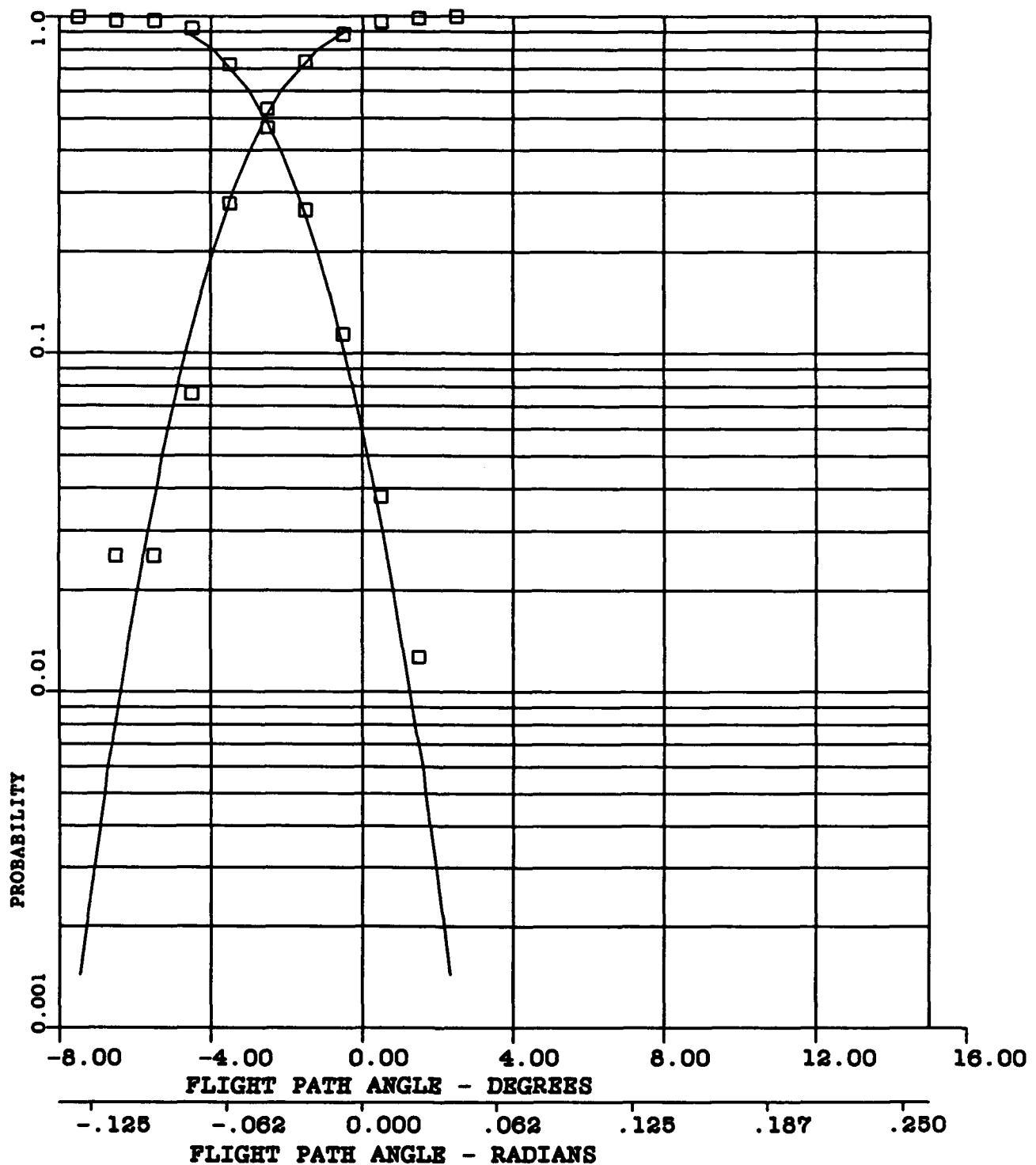


FIGURE L-56 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-70

 $\bar{X}$ -2.43 DEGREES (.042 RADIANS)

A3--.21

S-2.57 DEGREES (.044 RADIANS)

A4-2.77

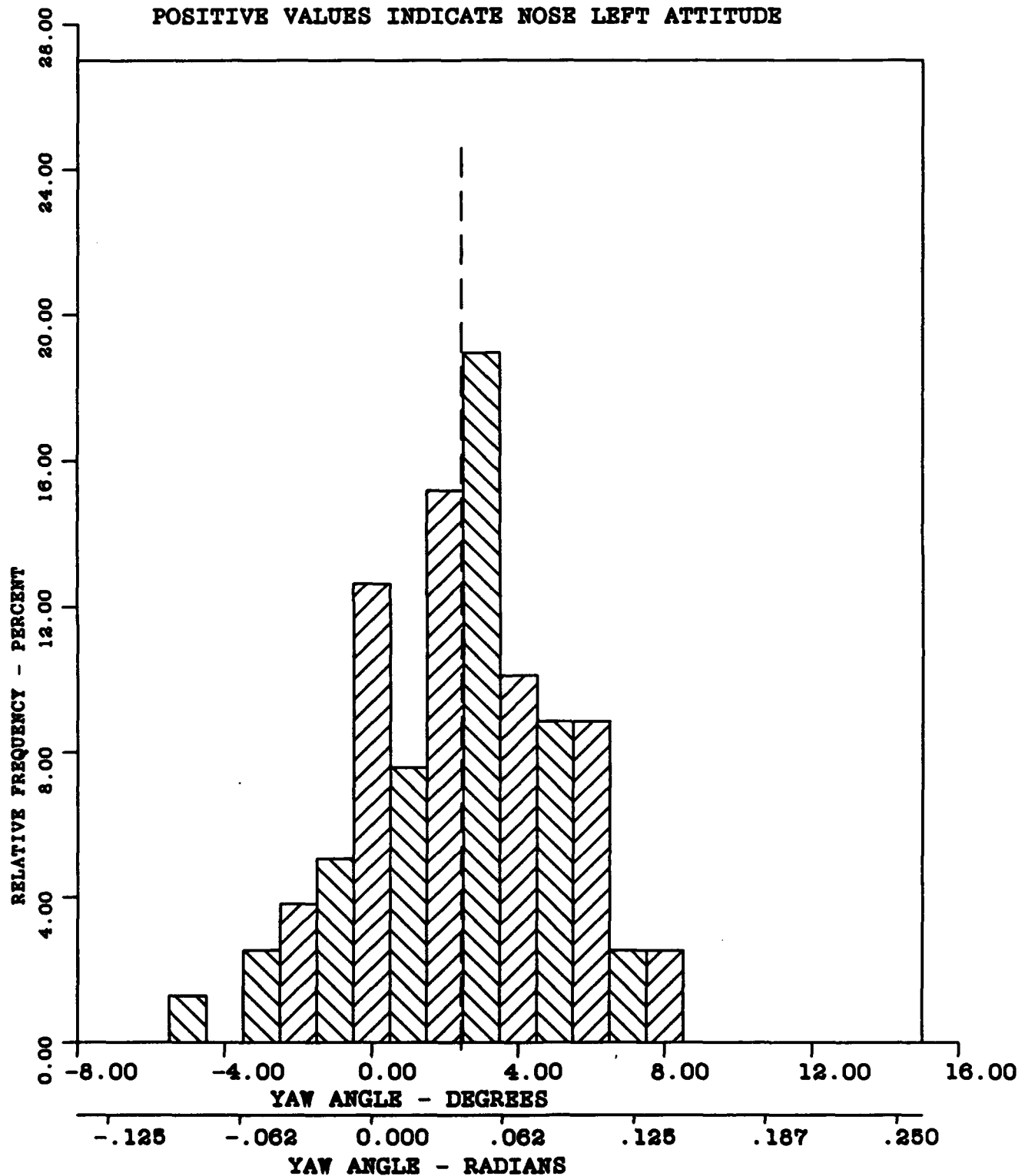


FIGURE L-57 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-79

 $\bar{X}$ -2.43 DEGREES (.042 RADIANS)

A3--.21

S-2.57 DEGREES (.044 RADIANS)

A4-2.77

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

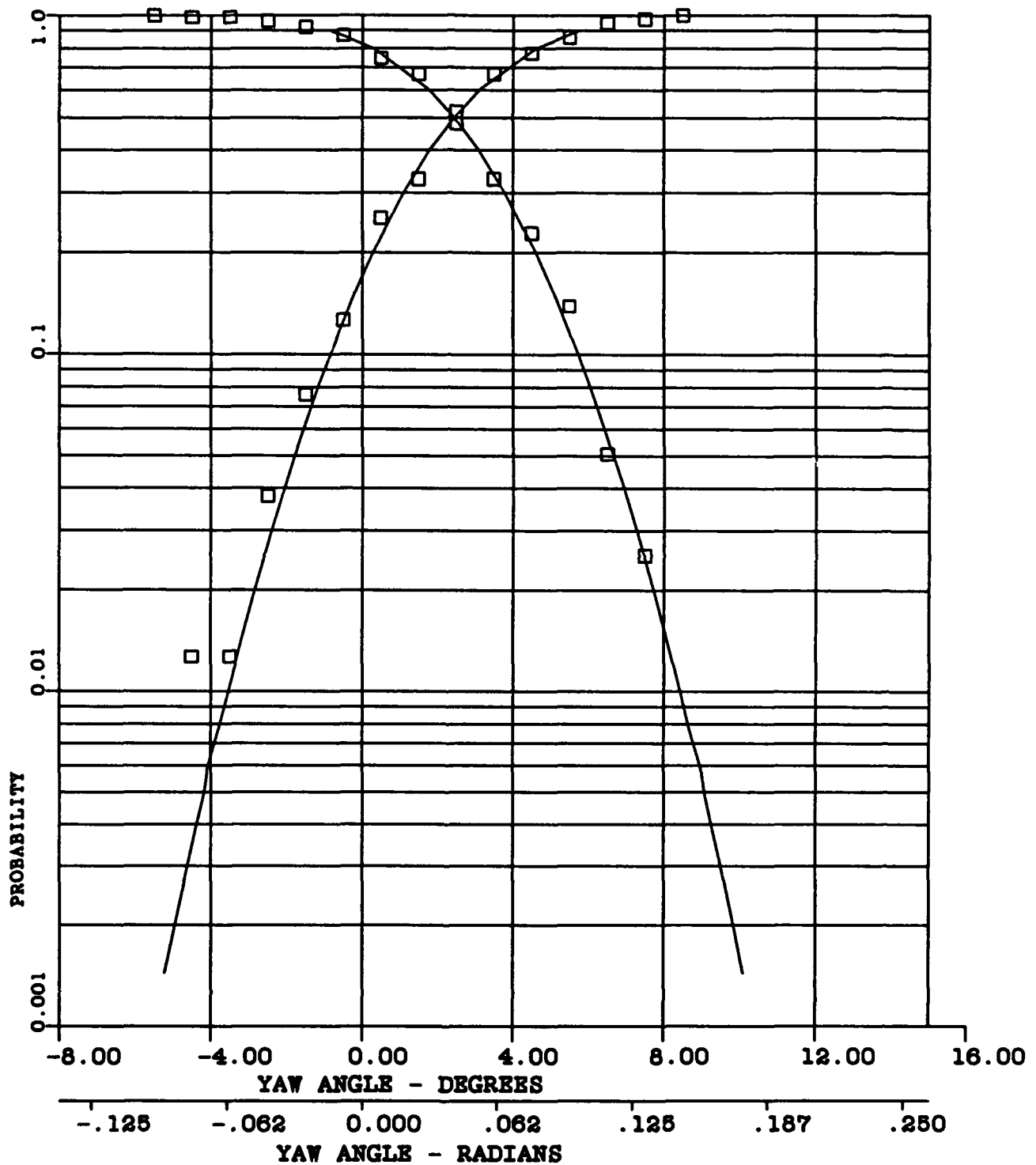


FIGURE L-58 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX M**

**E-2C AIRCRAFT**

**NIGHT CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

## Appendix M:

Frequency and Probability Distributions,  
E-2C Aircraft, Night Landings

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MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-68)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -23.84 KNOTS (12.26 METRES/SEC)

A3-0.57

S- 2.76 KNOTS (1.42 METRES/SEC)

A4-2.26

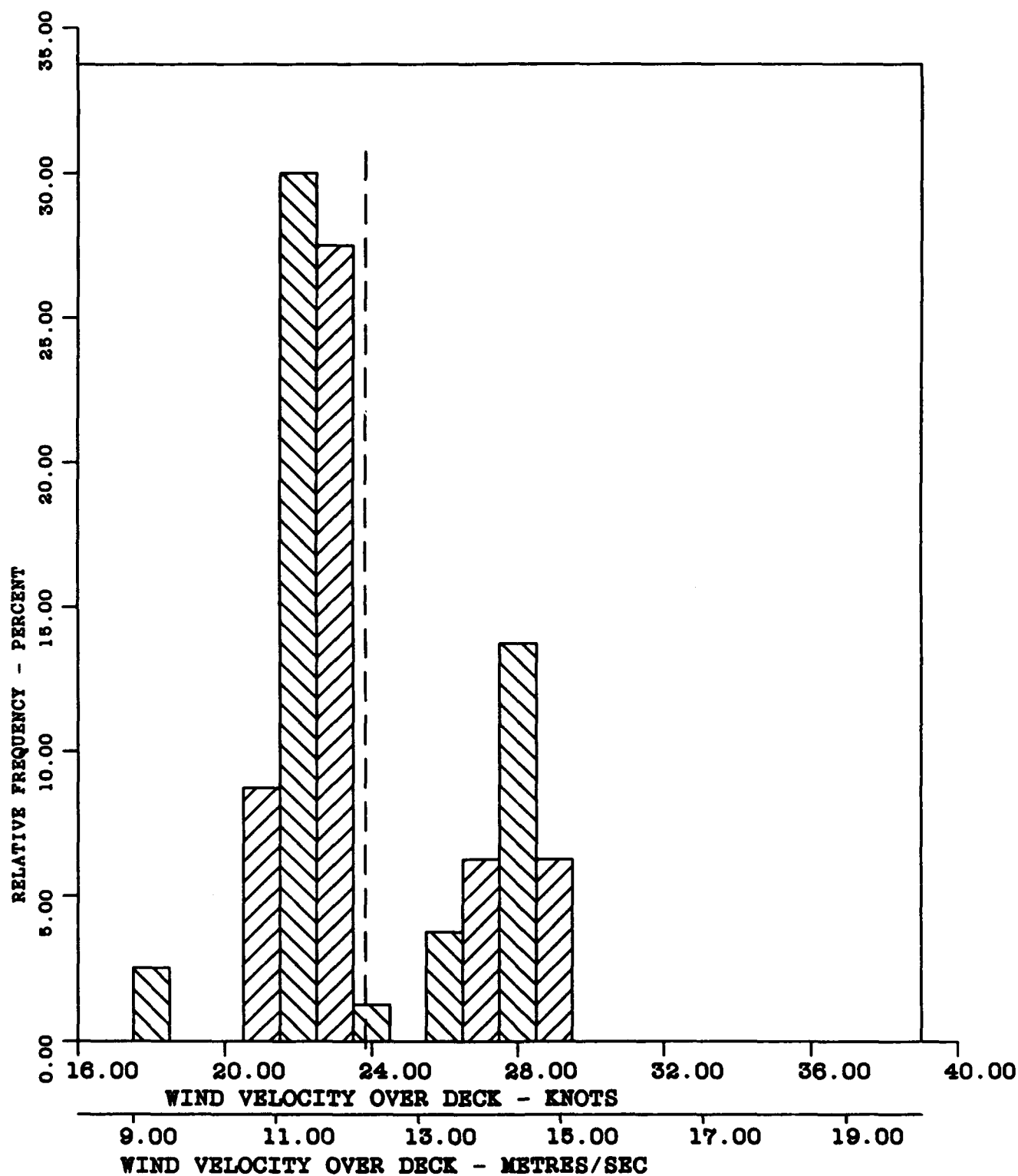


FIGURE M-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -23.84 KNOTS (12.26 METRES/SEC)

A3-0.57

S= 2.76 KNOTS (1.42 METRES/SEC)

A4-2.26

CURVE FITTED - PEARSON TYPE III

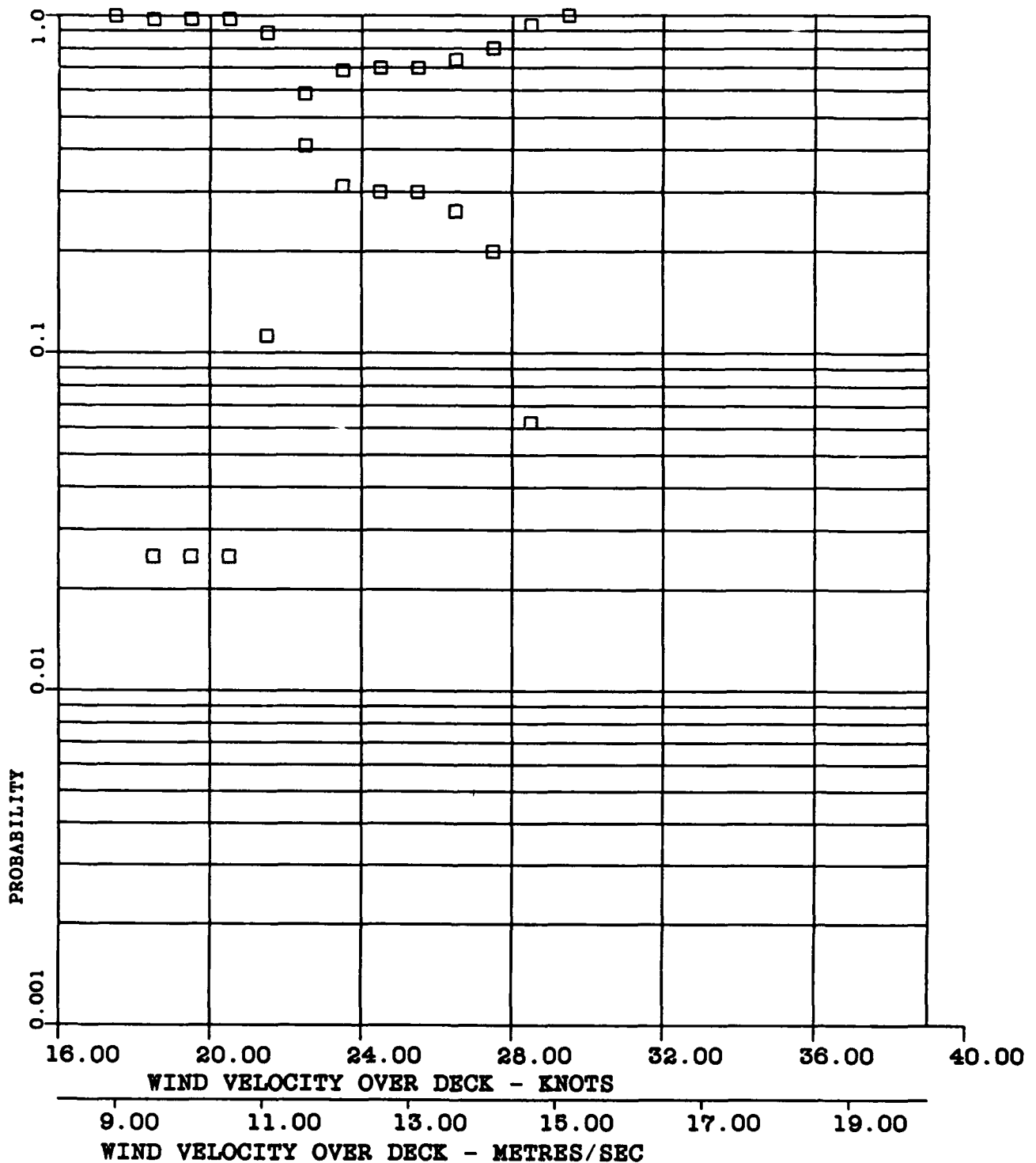


FIGURE M-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -108.45 KNOTS (55.79 METRES/SEC)

A3-0.26

S- 5.34 KNOTS (2.75 METRES/SEC)

A4-2.68

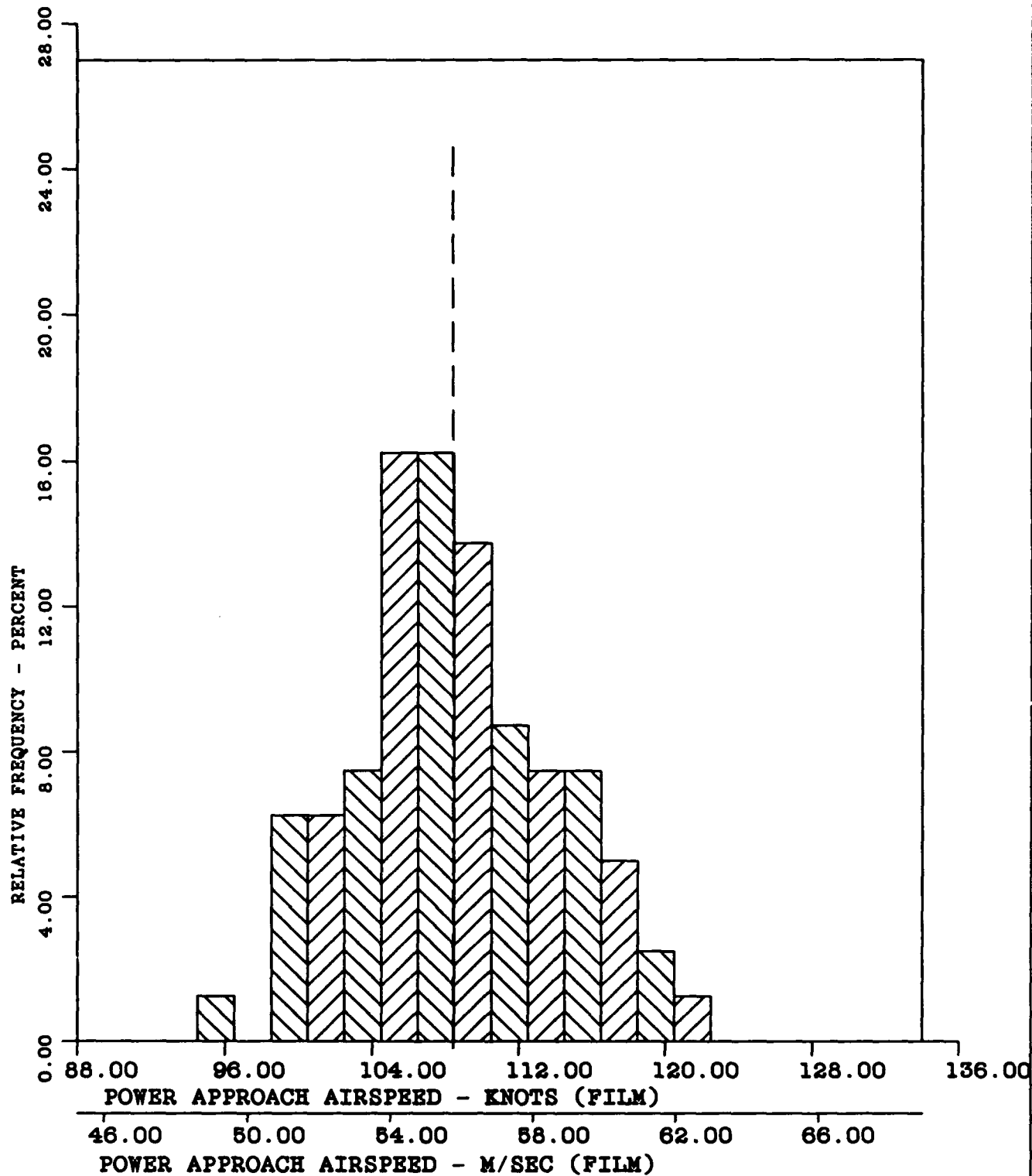


FIGURE M-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-66)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -108.45 KNOTS (55.79 METRES/SEC)

A3-0.26

S- 5.34 KNOTS (2.75 METRES/SEC)

A4-2.68

CURVE FITTED - NORMAL

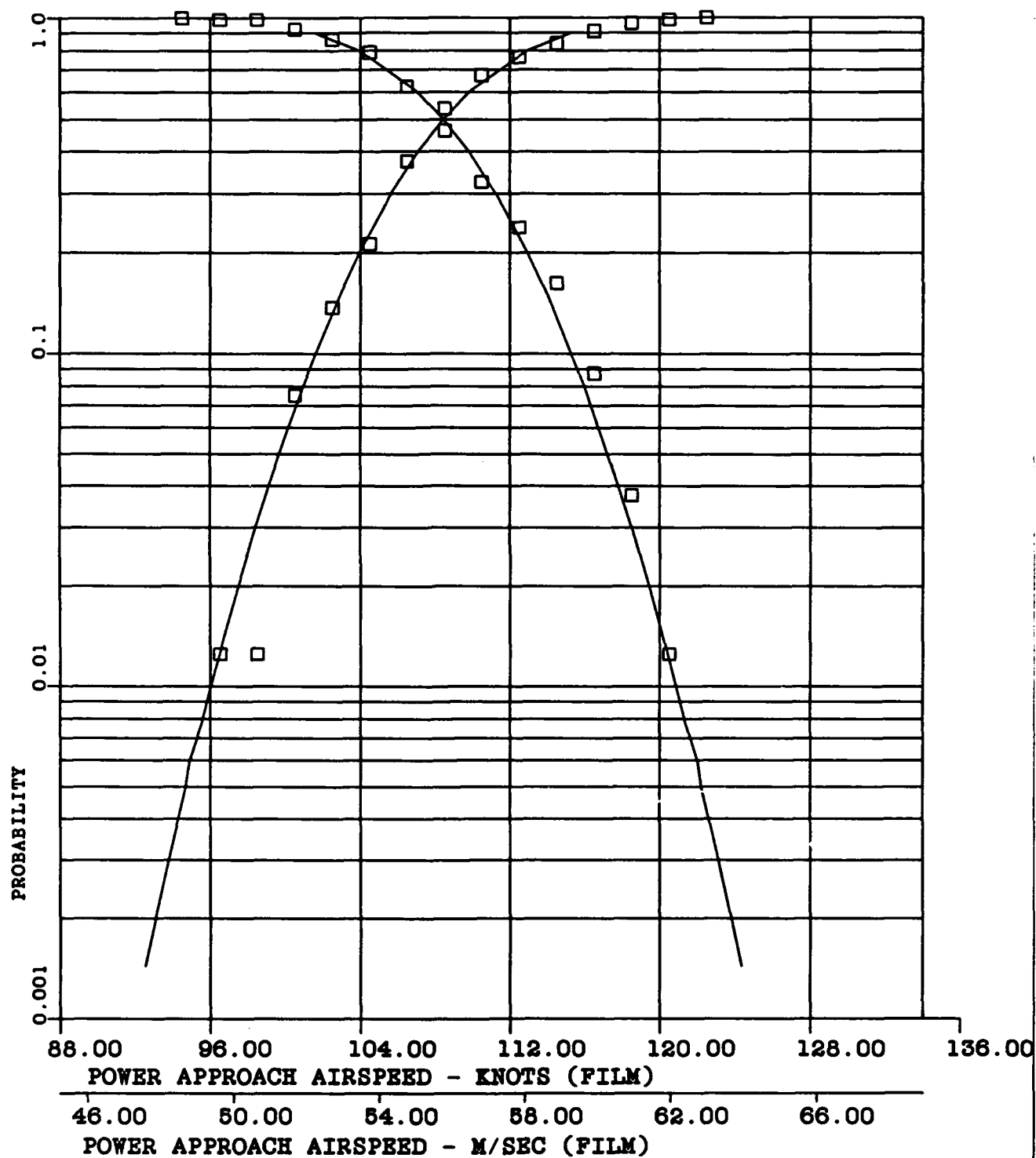


FIGURE M-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -6.30 FEET/SEC (1.92 METRES/SEC)

A3--0.14

S- 2.57 FEET/SEC (0.78 METRES/SEC)

A4-2.90

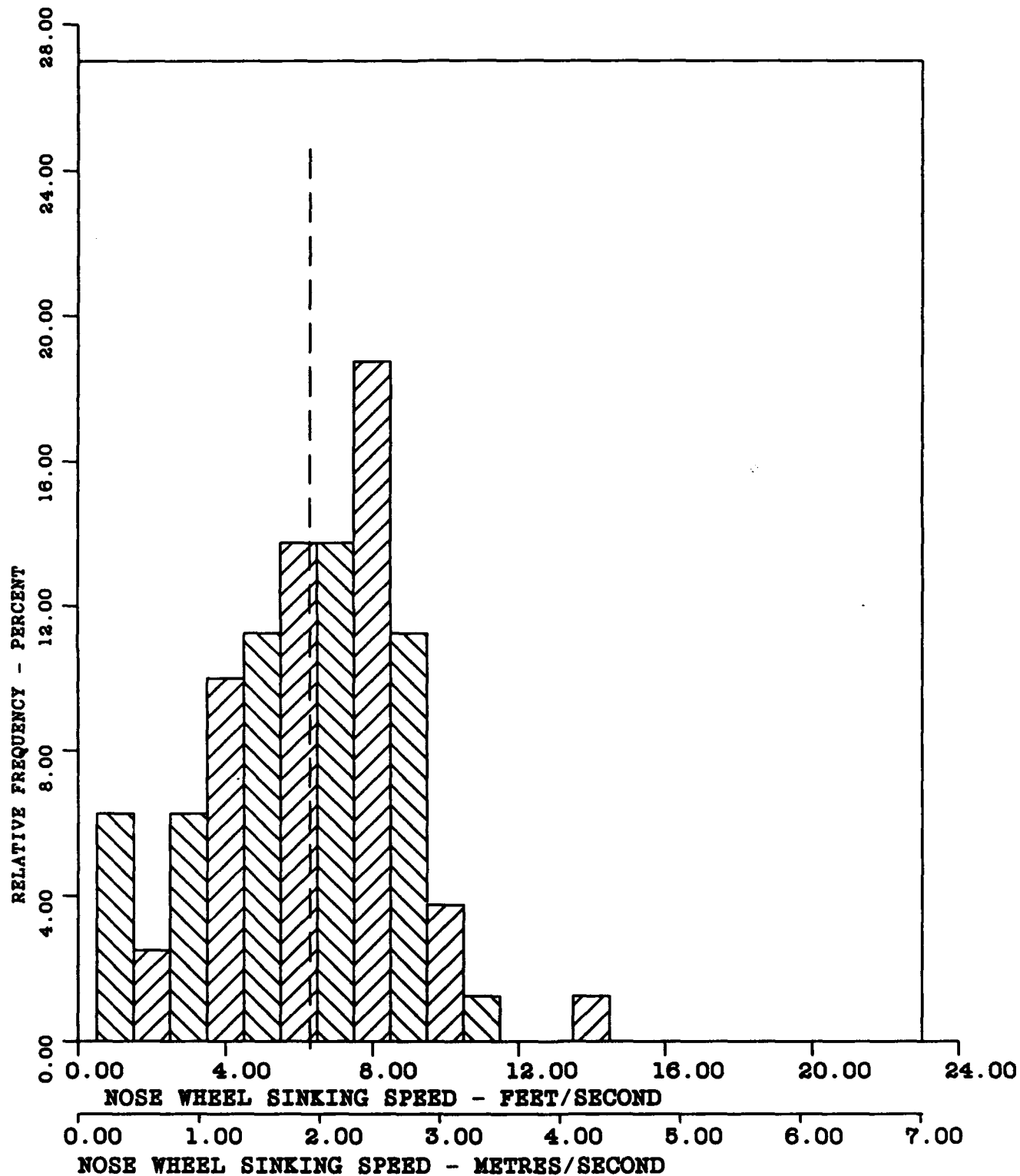


FIGURE M-5 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -6.30 FEET/SEC (1.92 METRES/SEC)

A3--0.14

S- 2.57 FEET/SEC (0.78 METRES/SEC)

A4-2.90

CURVE FITTED - NORMAL

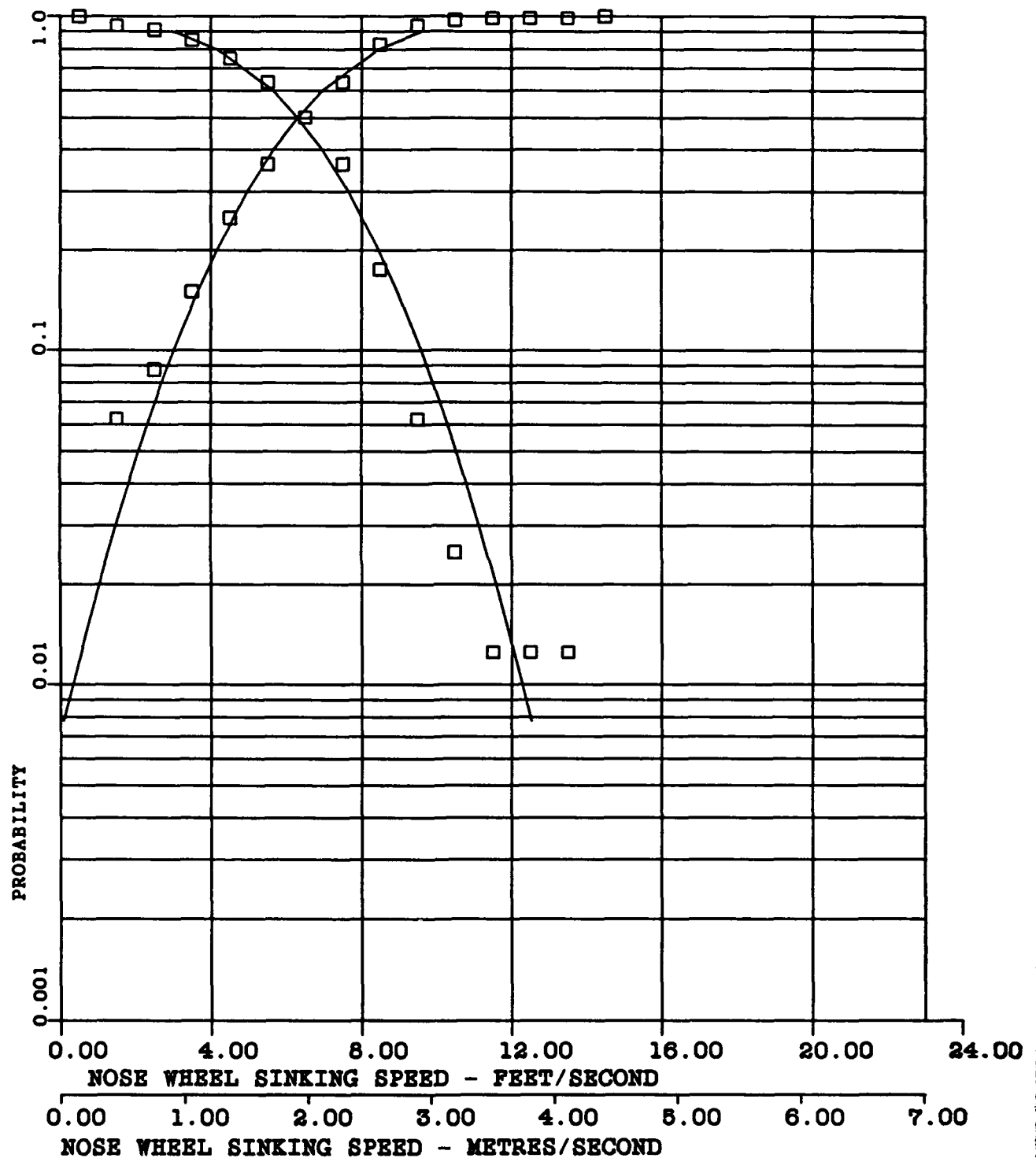


FIGURE M-6 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -8.24 FEET/SEC (2.51 METRES/SEC)

A3--0.23

S- 2.31 FEET/SEC (0.70 METRES/SEC)

A4-3.00

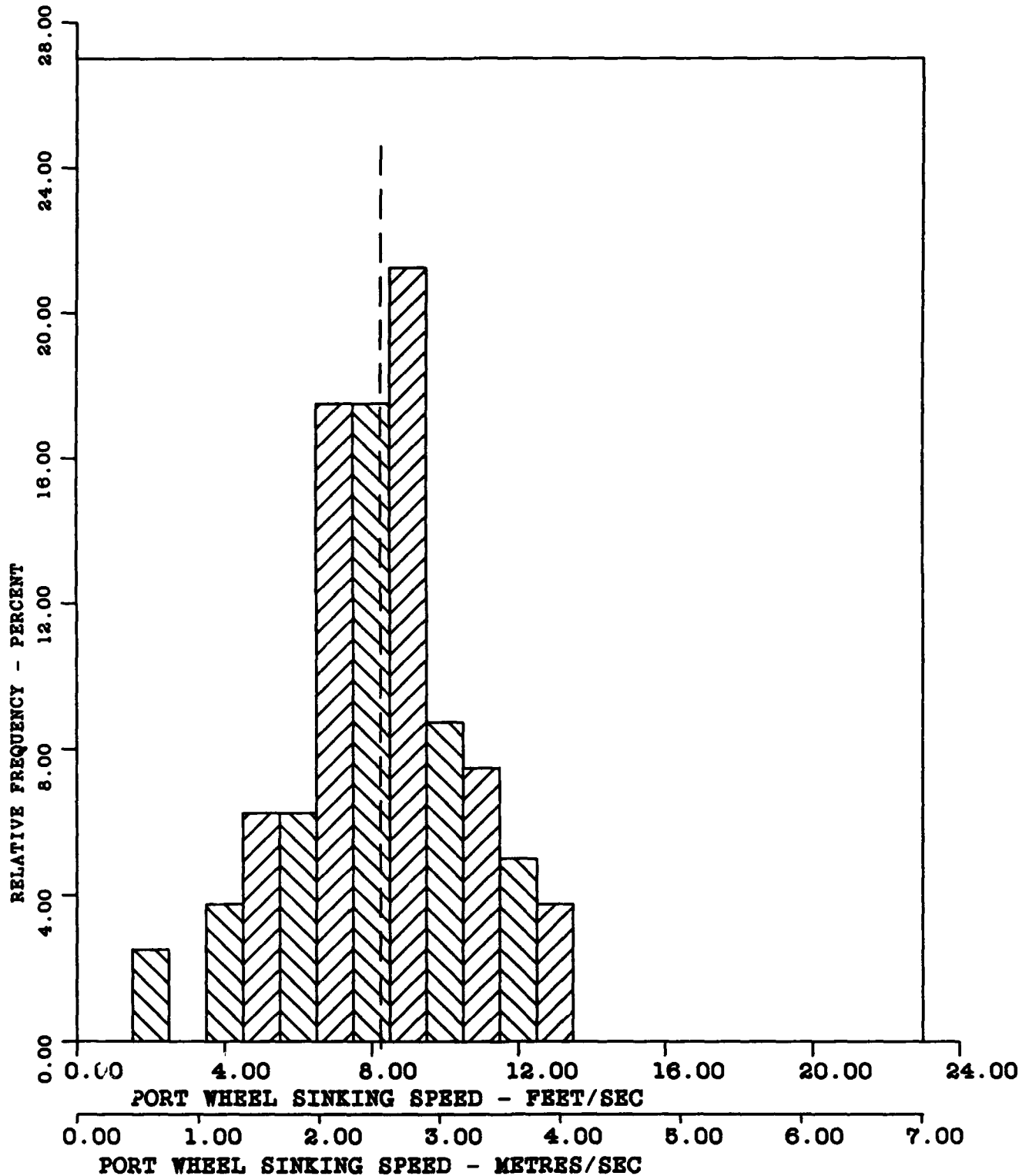


FIGURE M-7 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=80

 $\bar{X}$ =8.24 FEET/SEC (2.51 METRES/SEC)

A3=-0.23

S= 2.31 FEET/SEC (0.70 METRES/SEC)

A4=3.00

CURVE FITTED - NORMAL

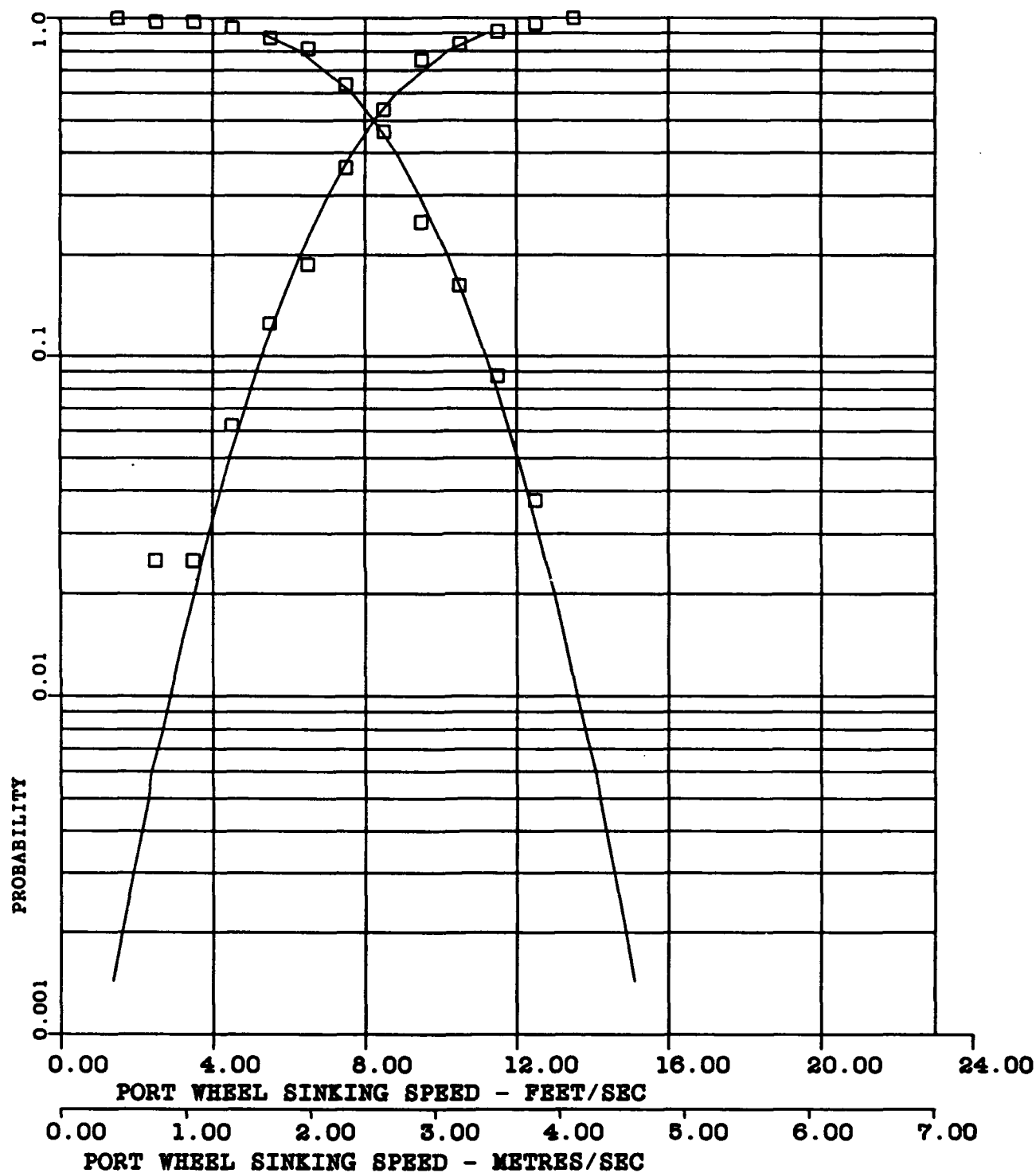


FIGURE M-8 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -8.01 FEET/SEC (2.44 METRES/SEC)

A3--0.16

S- 2.45 FEET/SEC (0.75 METRES/SEC)

A4-3.23

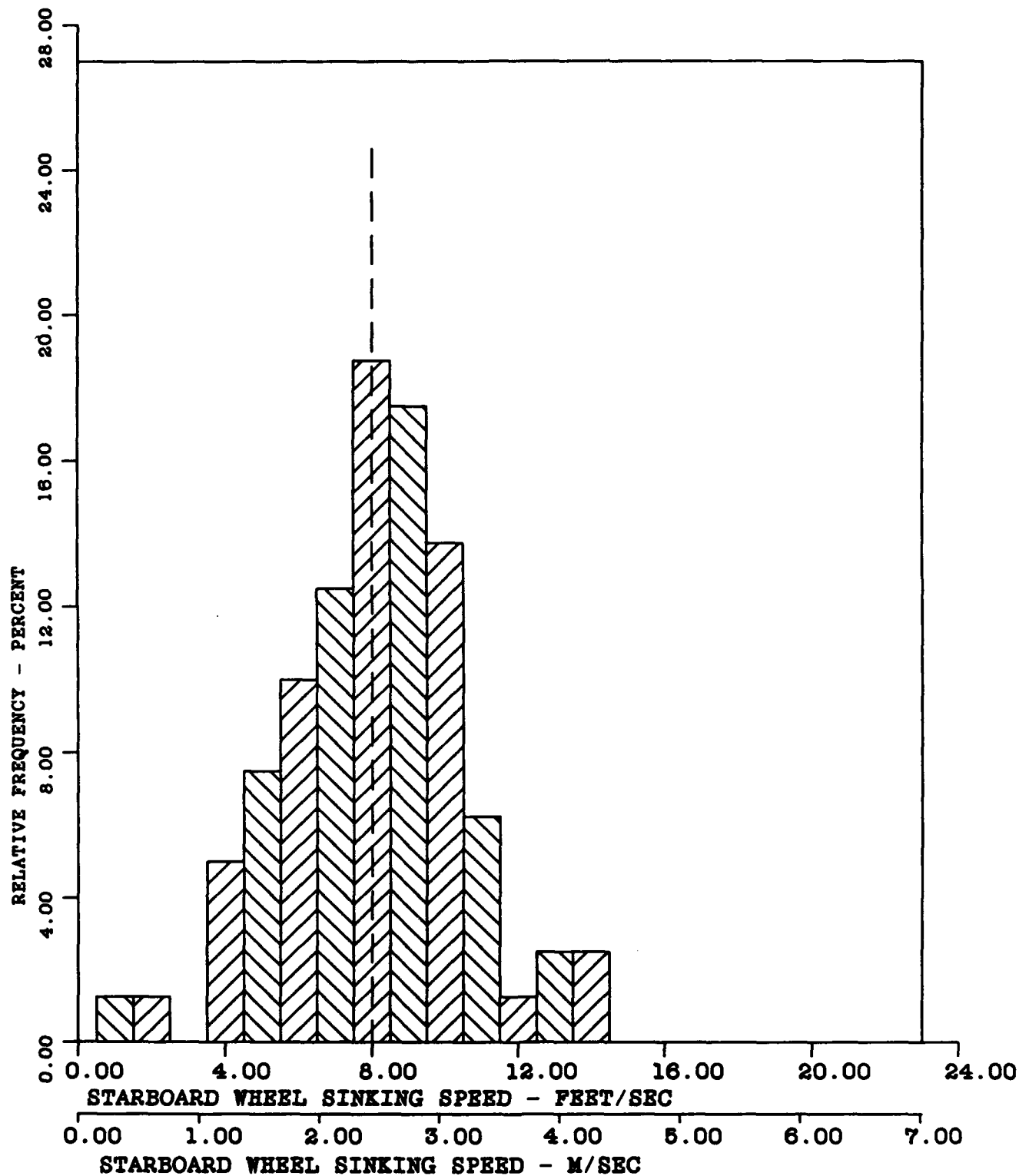


FIGURE M-9 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -8.01 FEET/SEC (2.44 METRES/SEC)

A3--0.16

S- 2.45 FEET/SEC (0.75 METRES/SEC)

A4-3.23

CURVE FITTED - NORMAL

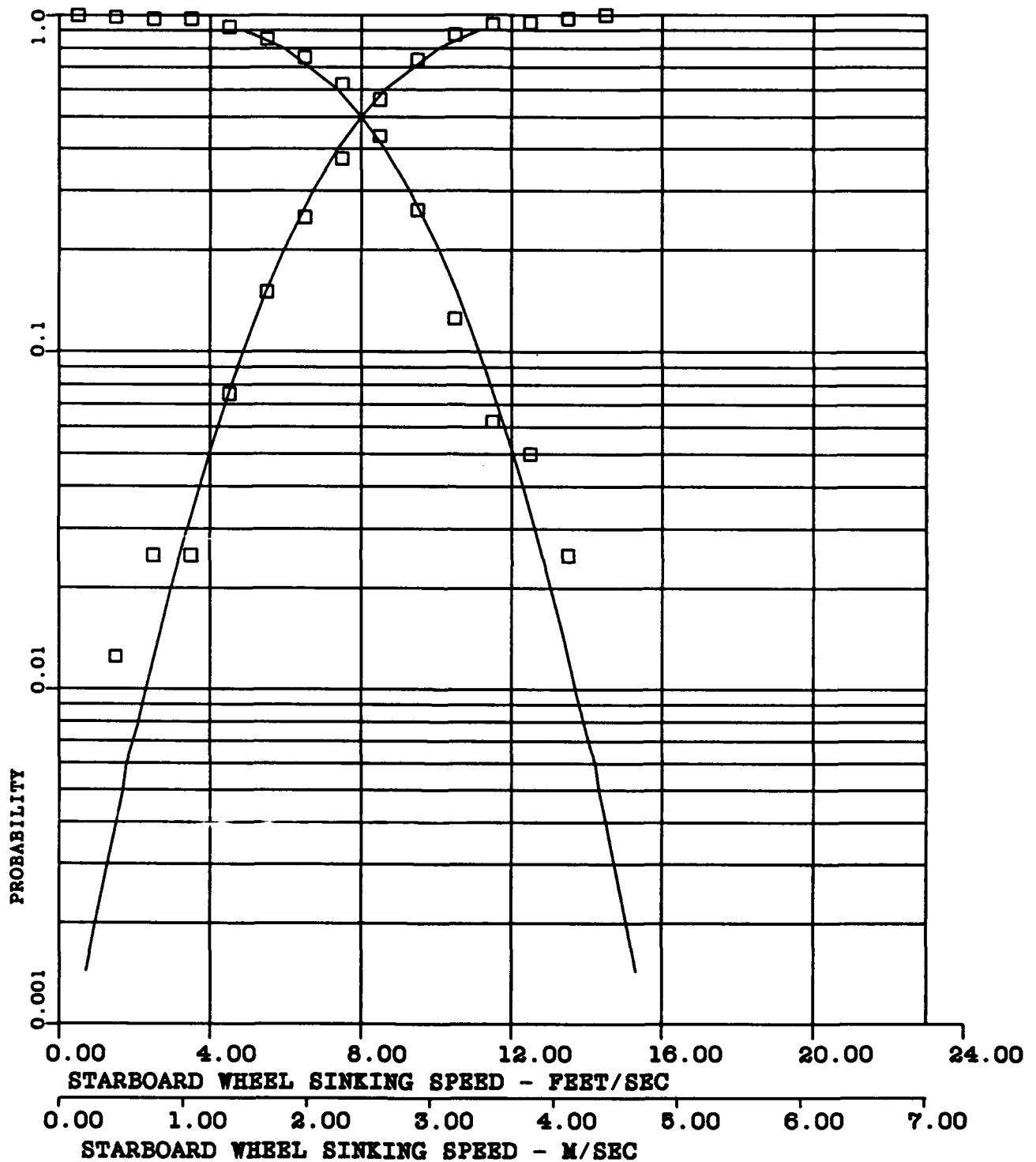


FIGURE M-10 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -8.30 FEET/SEC (2.53 METRES/SEC)

A3--0.20

S- 2.18 FEET/SEC (0.66 METRES/SEC)

A4-3.20

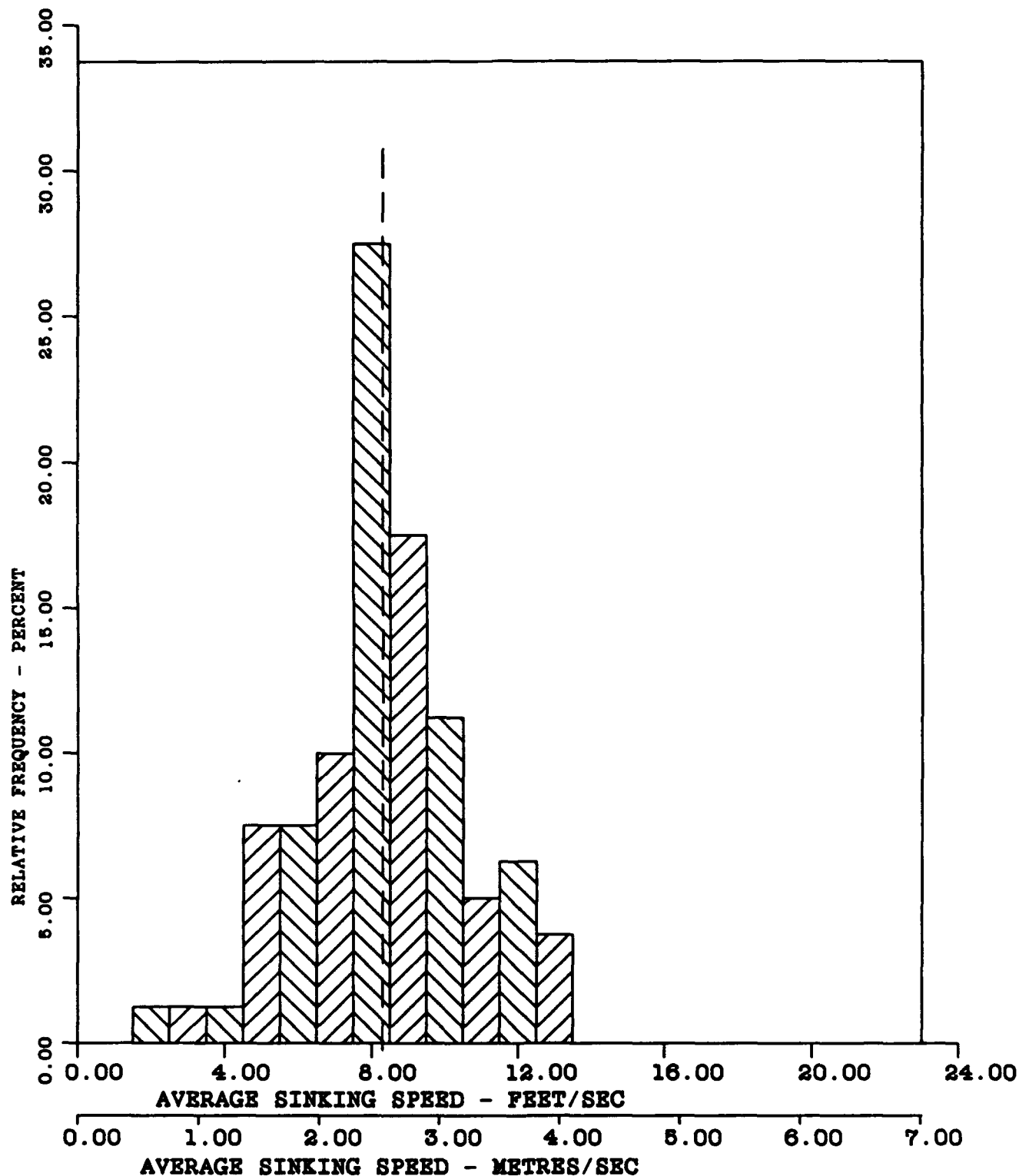


FIGURE M-11 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=80

 $\bar{X}$ -8.30 FEET/SEC (2.53 METRES/SEC)

A3--0.20

S- 2.18 FEET/SEC (0.66 METRES/SEC)

A4-3.20

CURVE FITTED - NORMAL

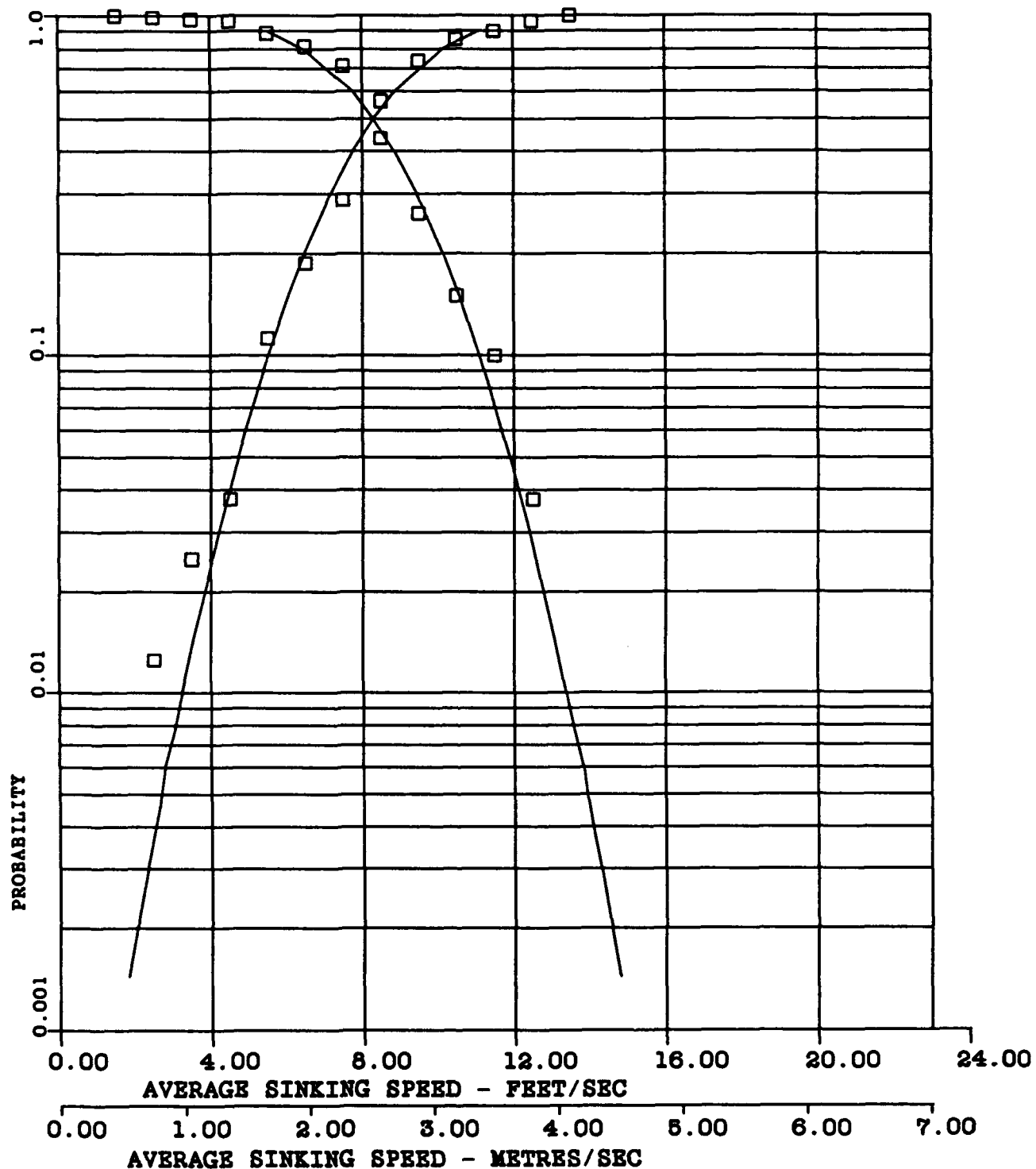


FIGURE M-12 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-6  $\bar{X}$ -9.46 FEET/SEC (2.88 METRES/SEC)

A3-0.60

S- 1.24 FEET/SEC (0.38 METRES/SEC)

A4-2.13

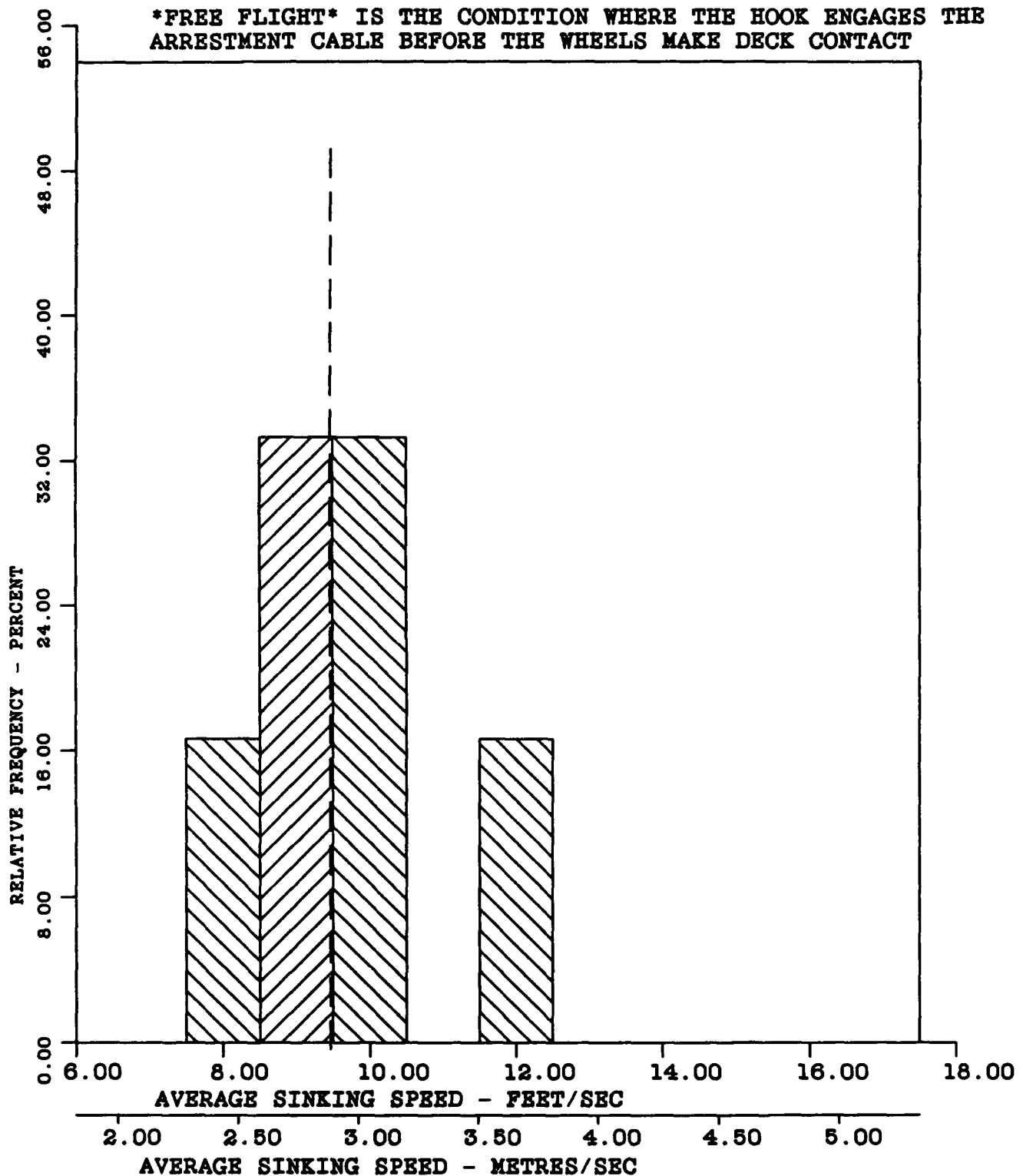


FIGURE M-13 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-6

 $\bar{X}$ -9.46 FEET/SEC (2.88 METRES/SEC)

A3-0.60

S- 1.24 FEET/SEC (0.38 METRES/SEC)

A4-2.13

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

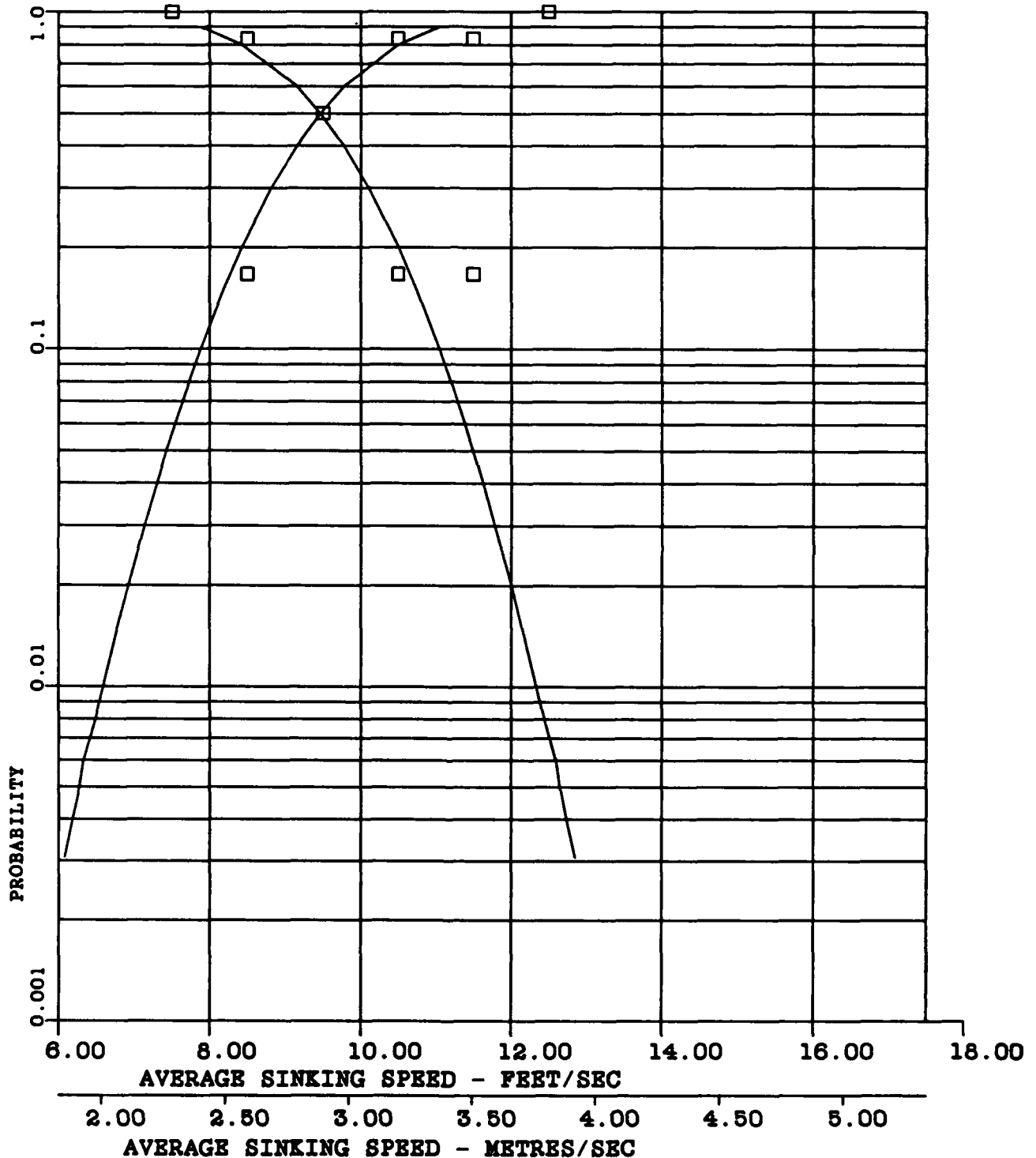


FIGURE M-14 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -1.02

S- 0.12

A3-0.63

A4-2.83

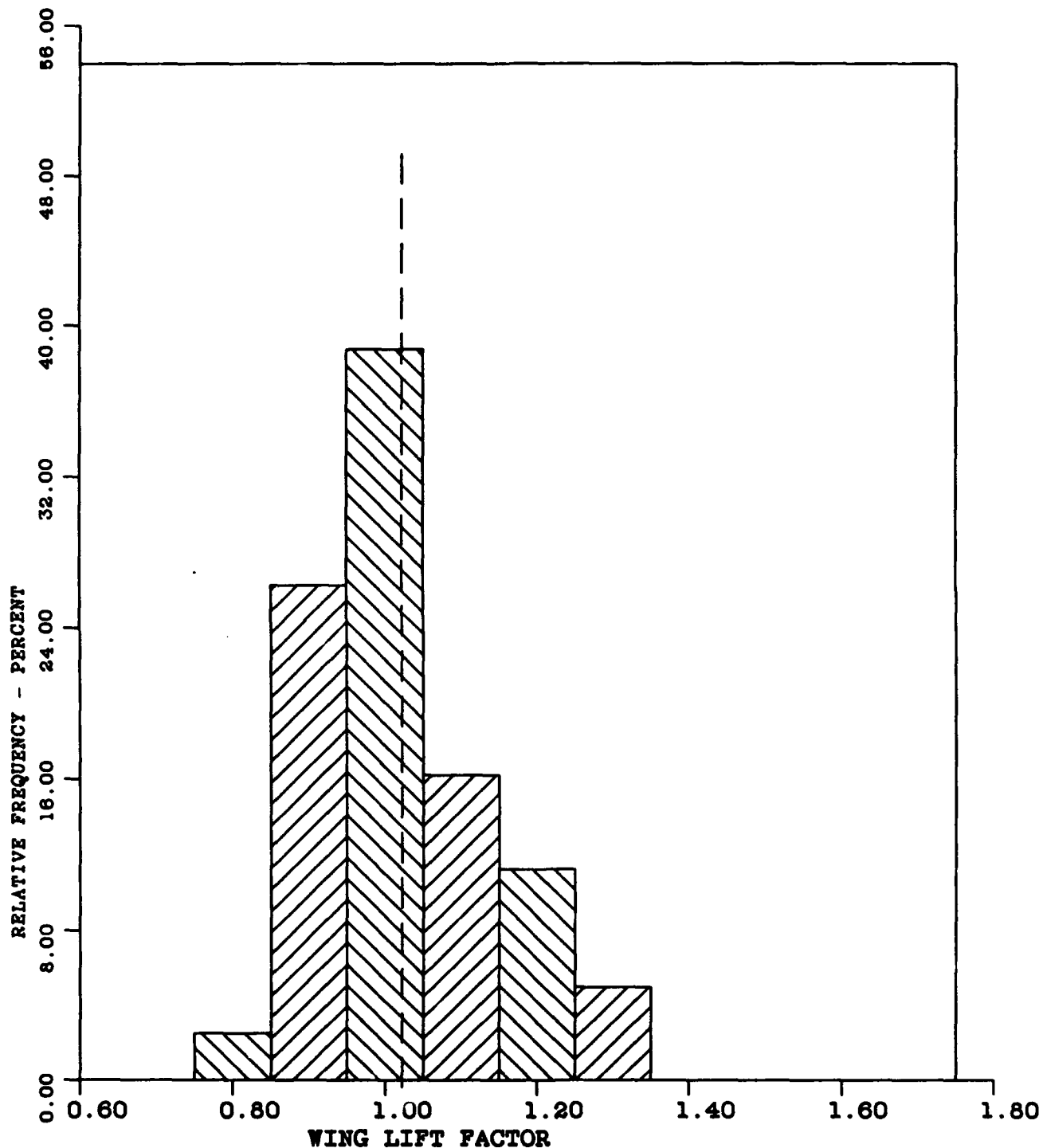


FIGURE M-15 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -1.02

A3-0.63

S- 0.12

A4-2.83

CURVE FITTED - PEARSON TYPE III

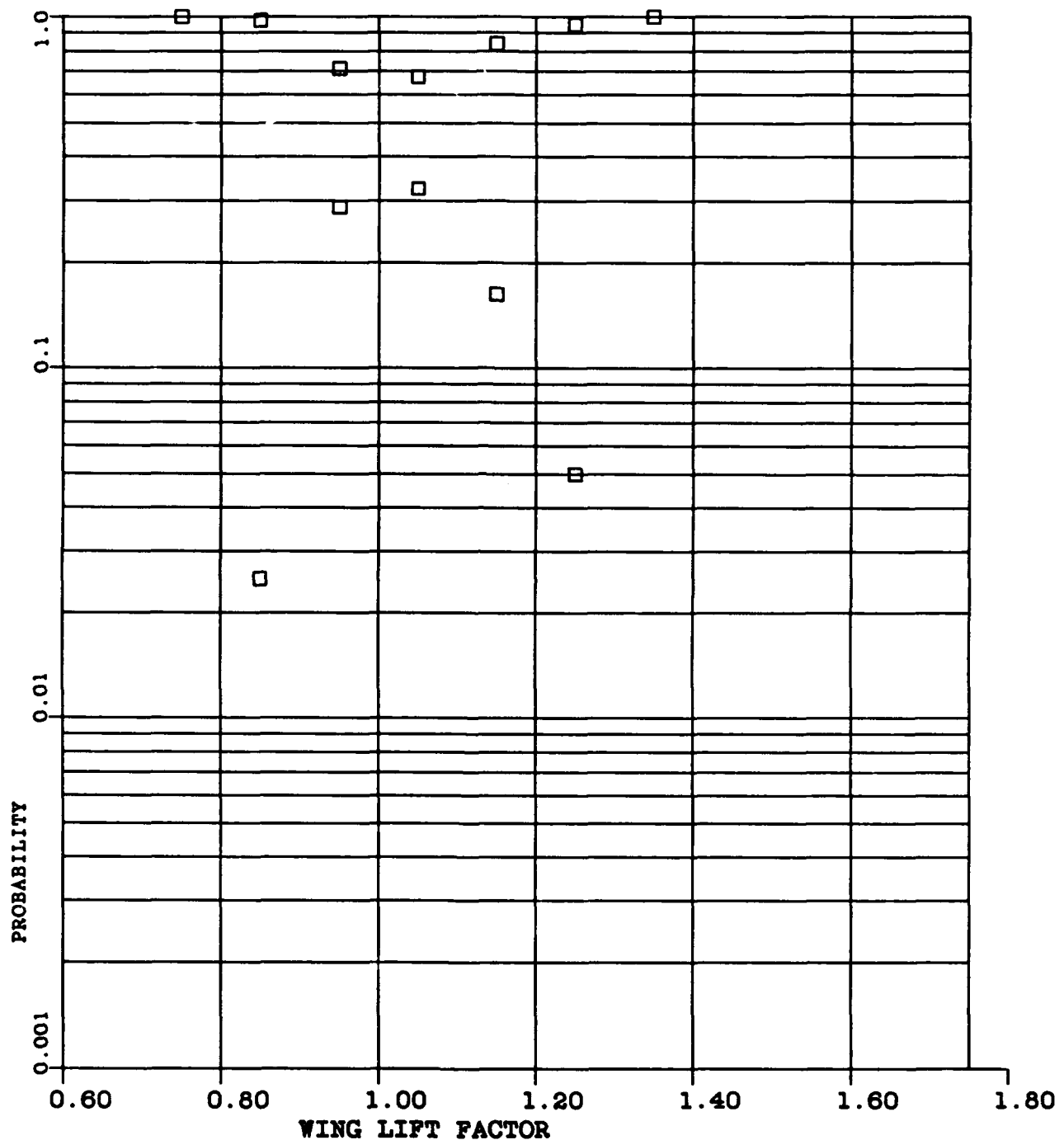


FIGURE M-16 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-6

 $\bar{X}$ -1.08

S= 0.16

A3=0.53

A4=1.55

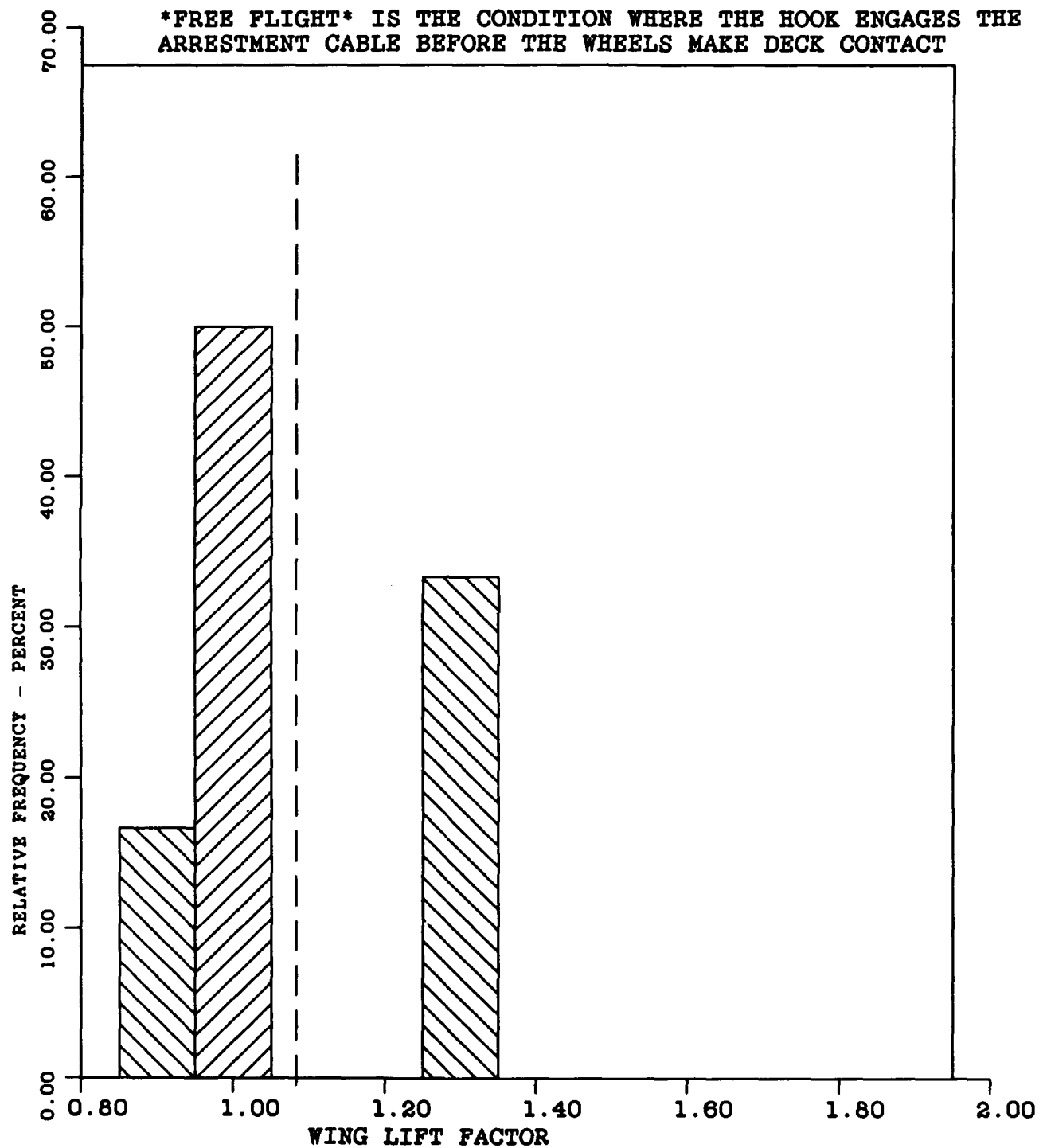


FIGURE M-17 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-6

 $\bar{X}=1.08$ 

A3-0.53

S= 0.16

A4-1.55

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

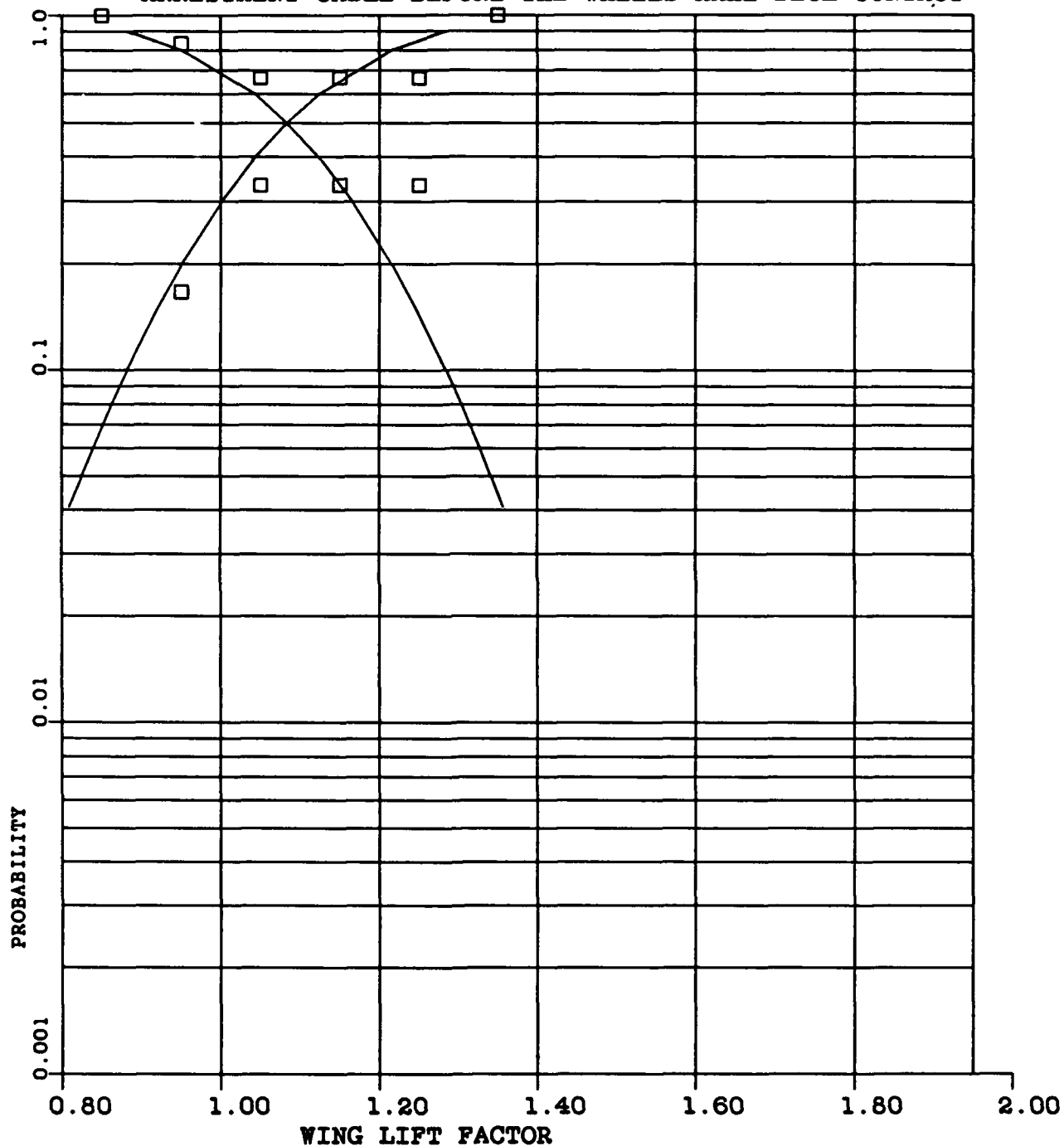


FIGURE M-18 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -7.56 DEGREES (0.132 RADIANS)

A3-0.14

S- 1.14 DEGREES (0.020 RADIANS)

A4-2.45

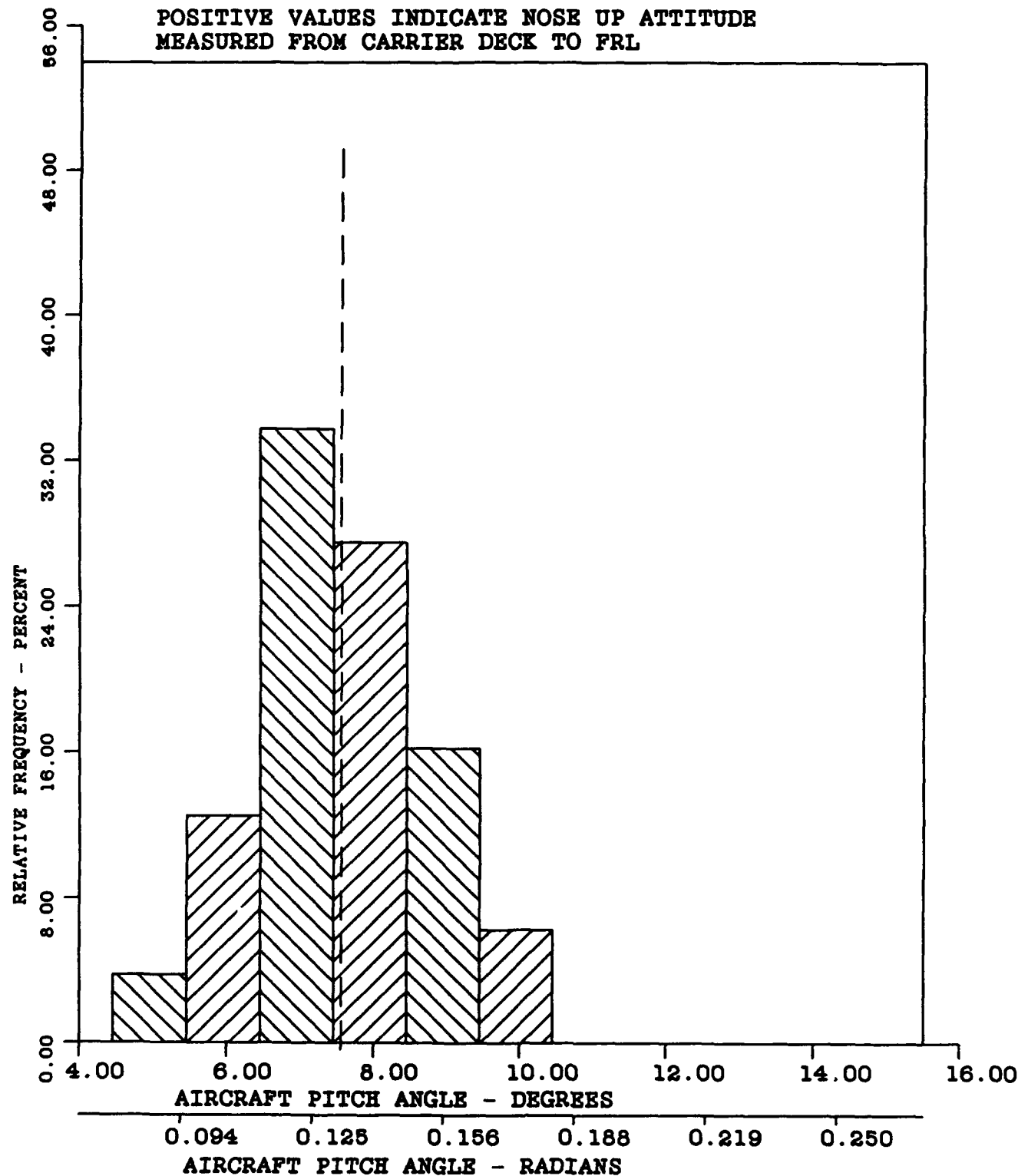


FIGURE M-19 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -7.56 DEGREES (0.132 RADIANS)

A3-0.14

S- 1.14 DEGREES (0.020 RADIANS)

A4-2.45

CURVE FITTED - NORMAL

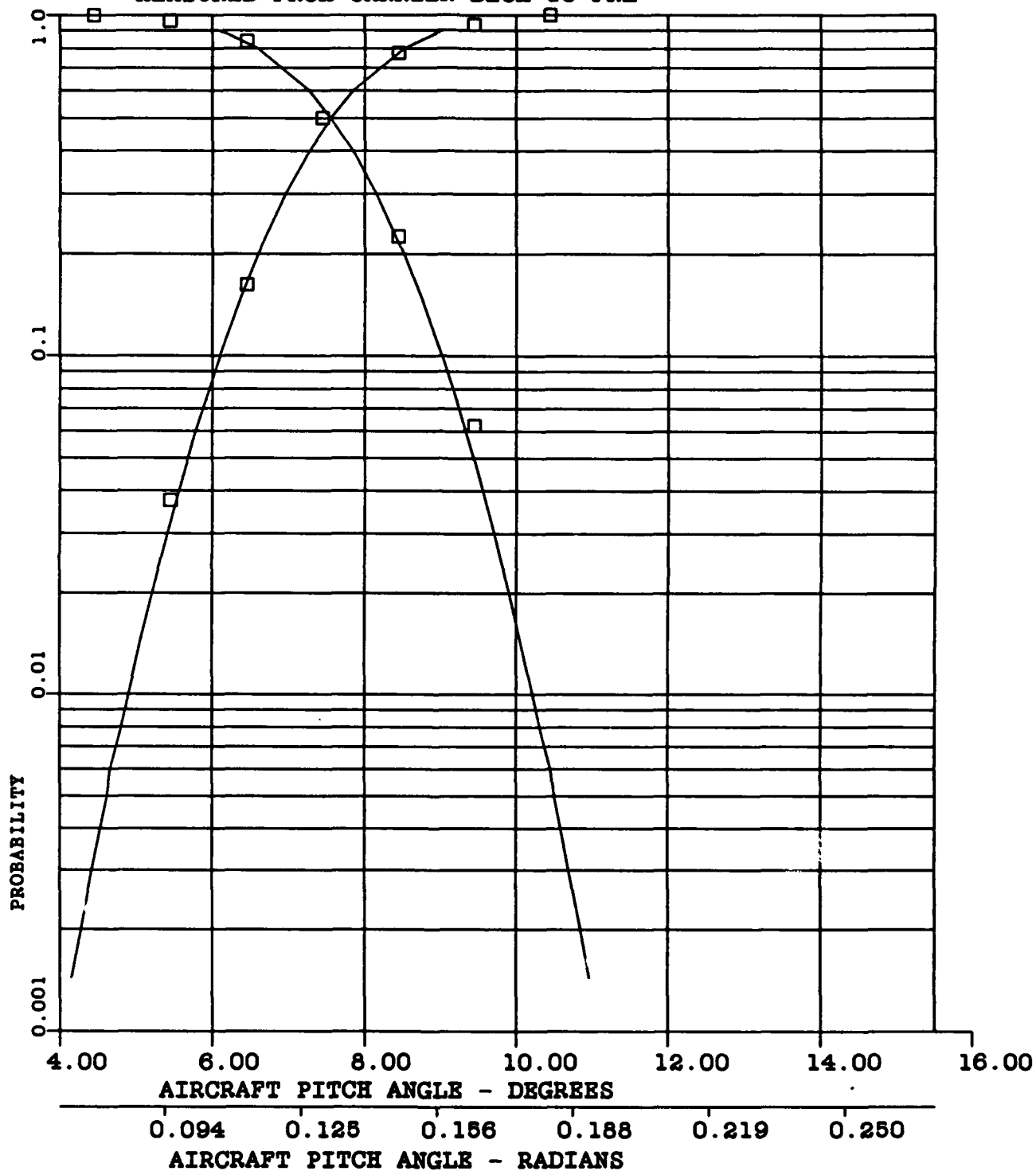
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE M-20 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-6

 $\bar{X}$ -8.57 DEGREES (0.149 RADIANS)

A3--0.06

S- 0.79 DEGREES (0.014 RADIANS)

A4-1.93

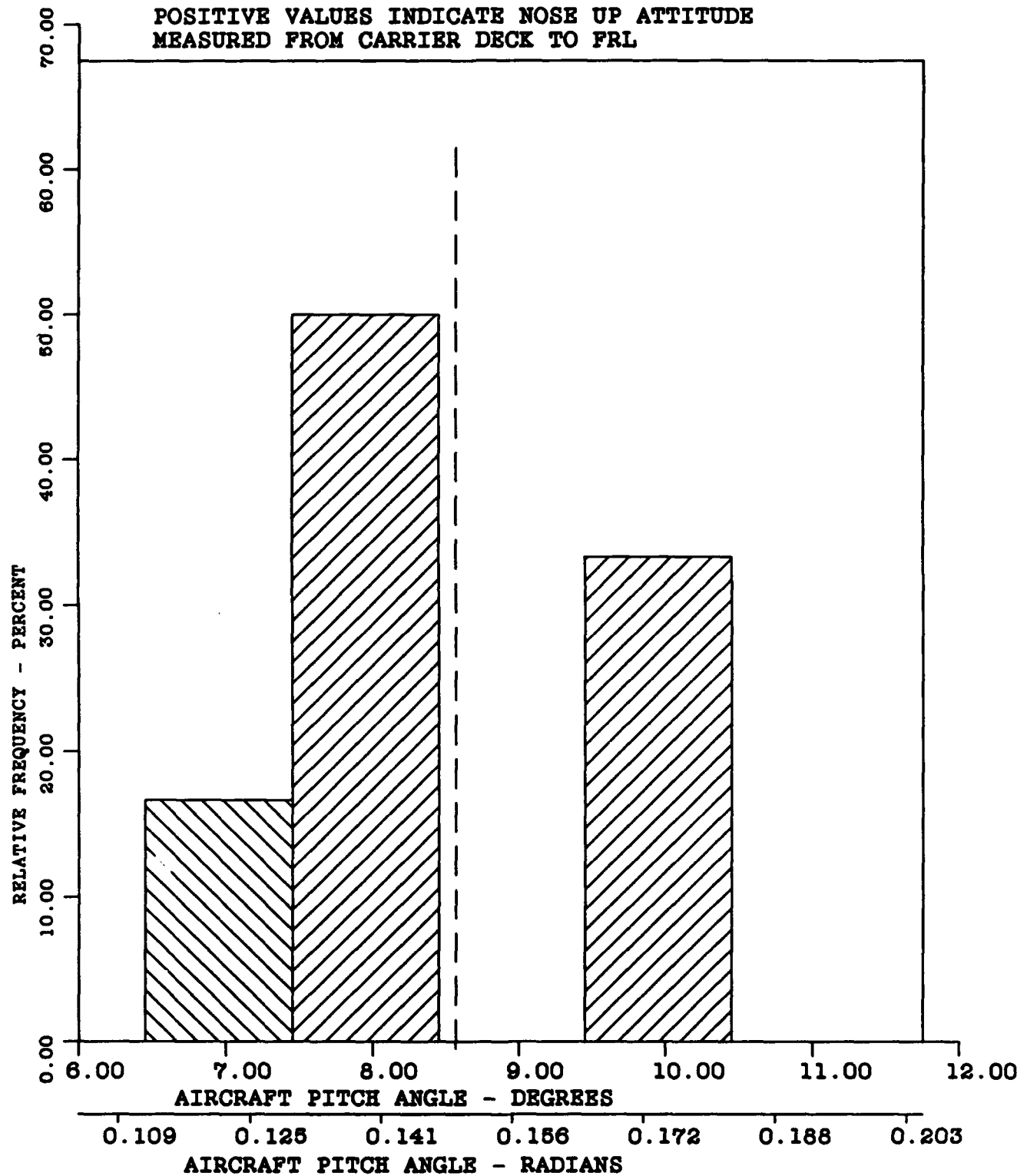


FIGURE M-21 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-6

 $\bar{X}$ -8.57 DEGREES (0.149 RADIANS)

A3--0.06

S- 0.79 DEGREES (0.014 RADIANS)

A4-1.93

CURVE FITTED - NORMAL

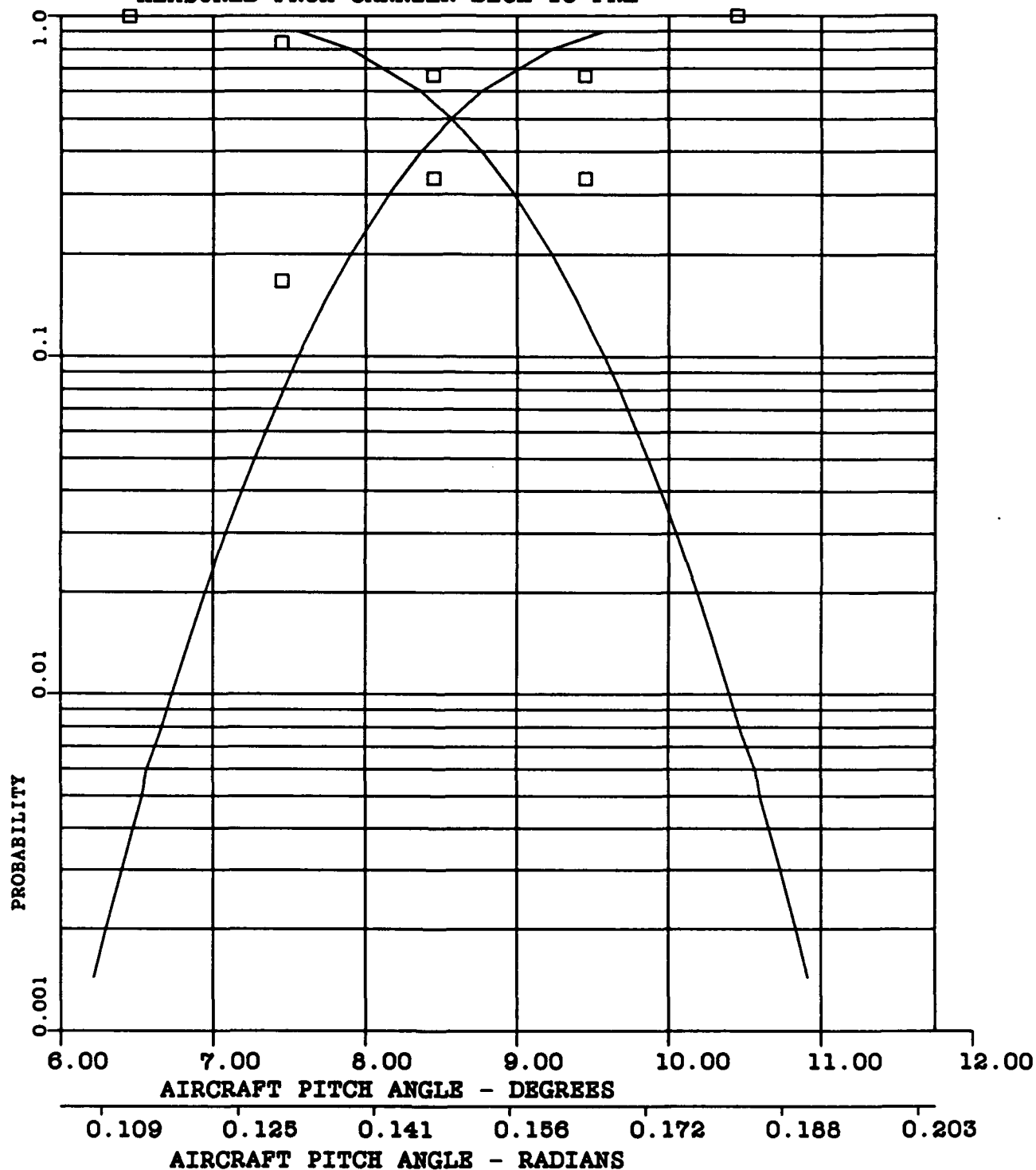
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE M-22 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -1.18 DEGREES (0.021 RADIANS)

A3-1.03

S- 3.06 DEGREES (0.053 RADIANS)

A4-5.05

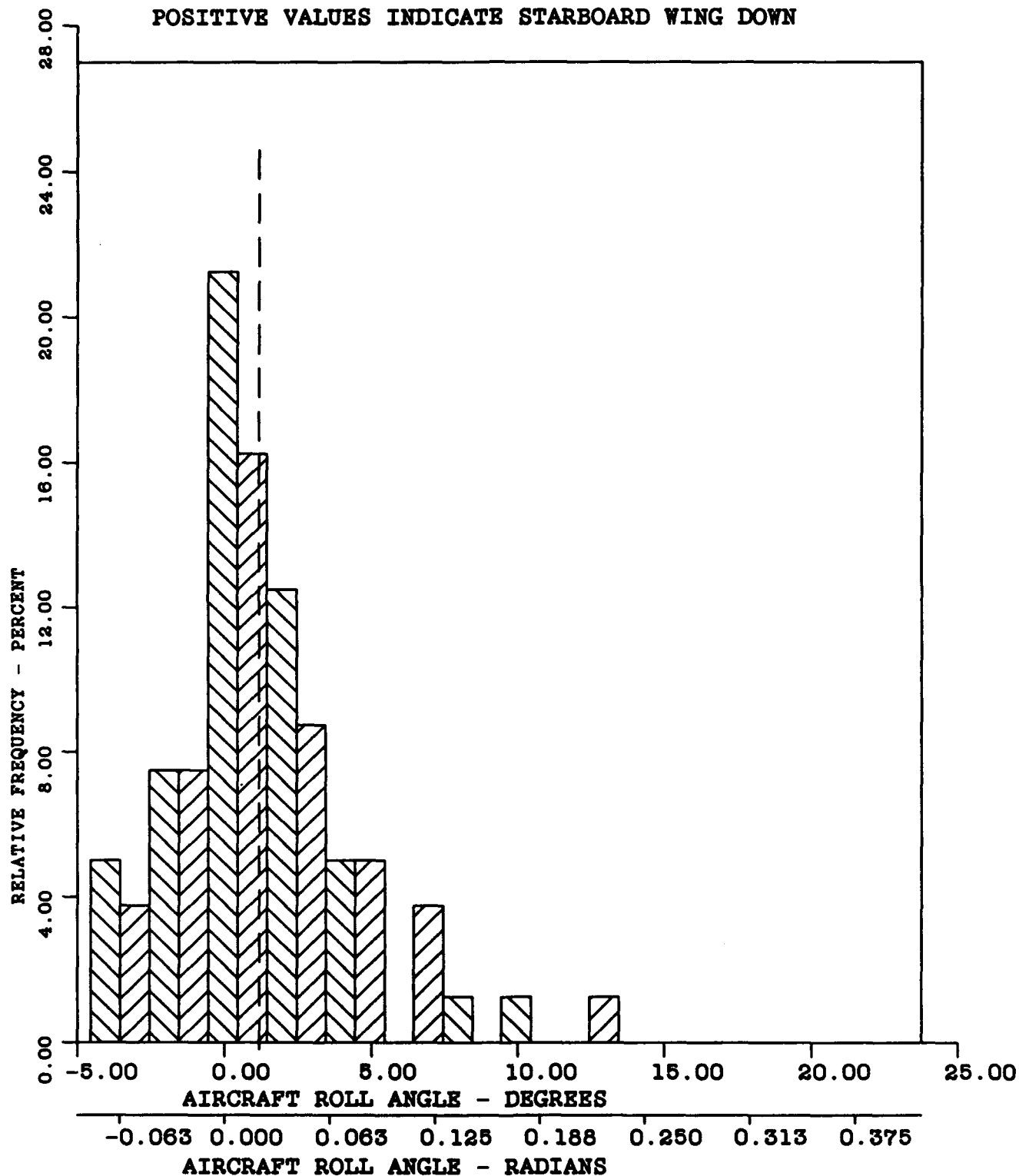


FIGURE M-23 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=80

 $\bar{X}$ -1.18 DEGREES (0.021 RADIANS)

A3-1.03

S= 3.06 DEGREES (0.053 RADIANS)

A4-5.05

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

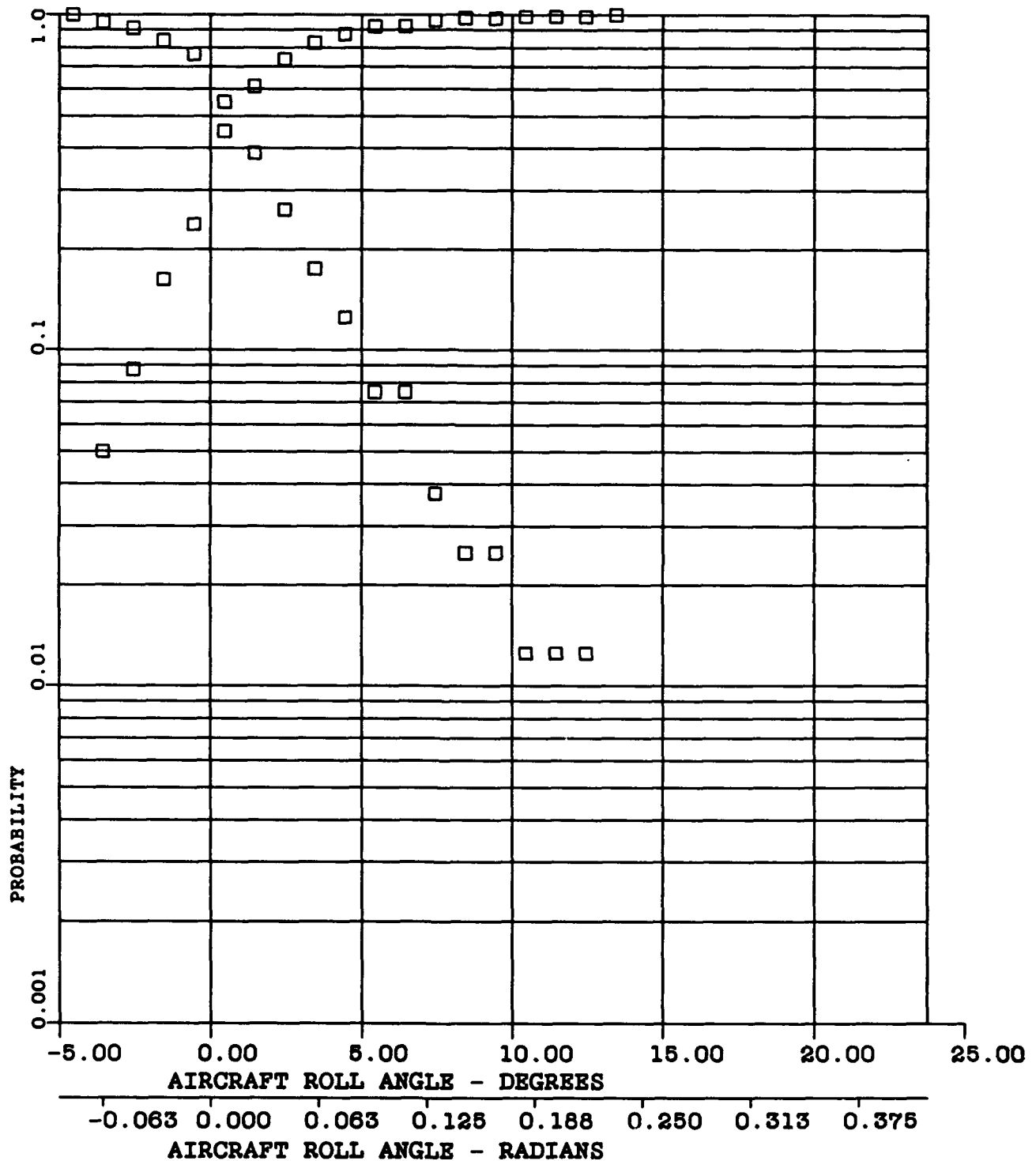


FIGURE M-24 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-6

 $\bar{X}$ -0.45 DEGREES (0.008 RADIANS)

A3-0.94

S- 0.98 DEGREES (0.017 RADIANS)

A4-3.08

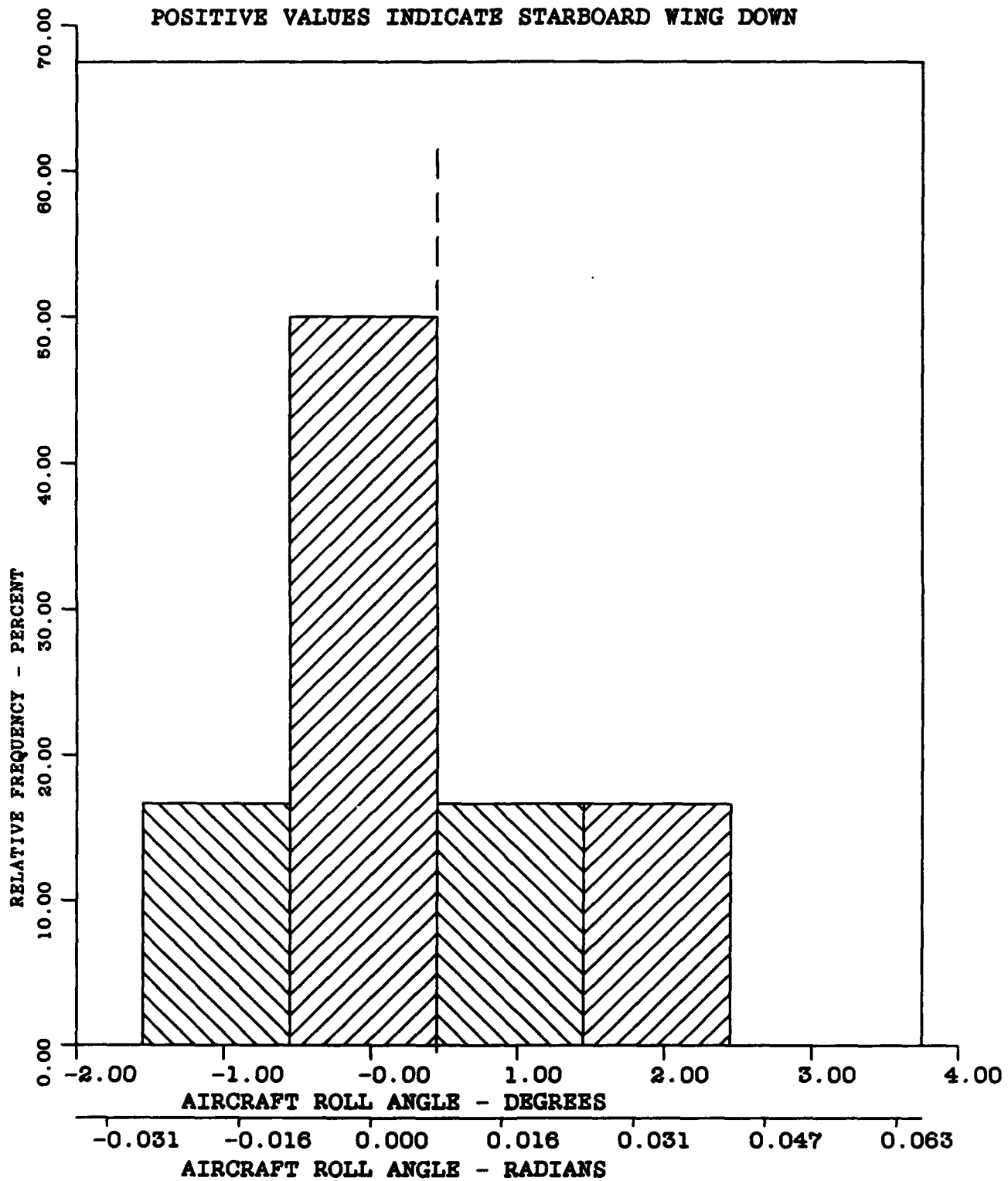


FIGURE M-25 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-6

 $\bar{X}$ -0.45 DEGREES (0.008 RADIANS)

A3-0.94

S= 0.98 DEGREES (0.017 RADIANS)

A4-3.08

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

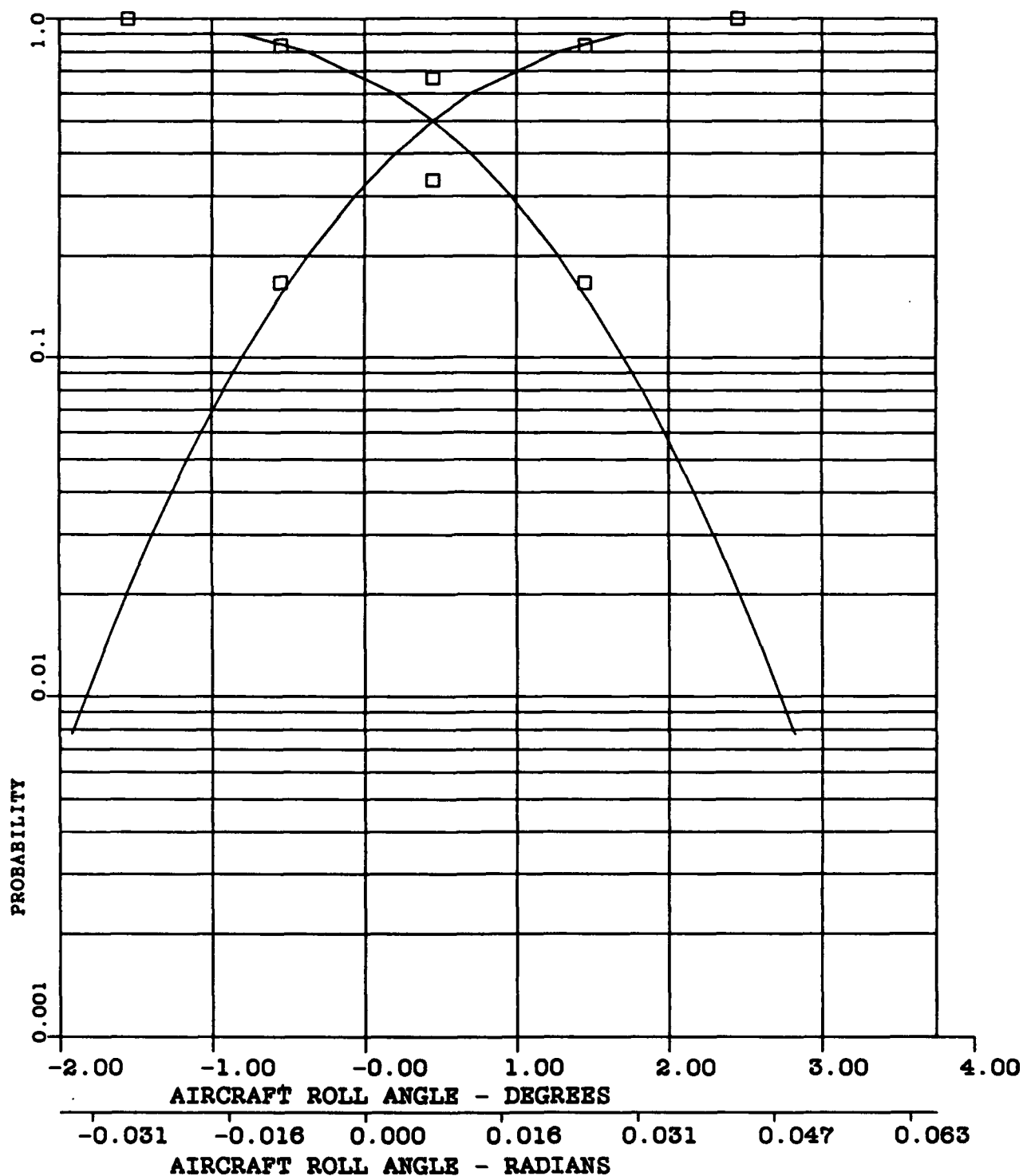


FIGURE M-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -269.56 FEET (82.16 METRES)

A3--0.63

S- 41.61 FEET (12.68 METRES)

A4-3.07

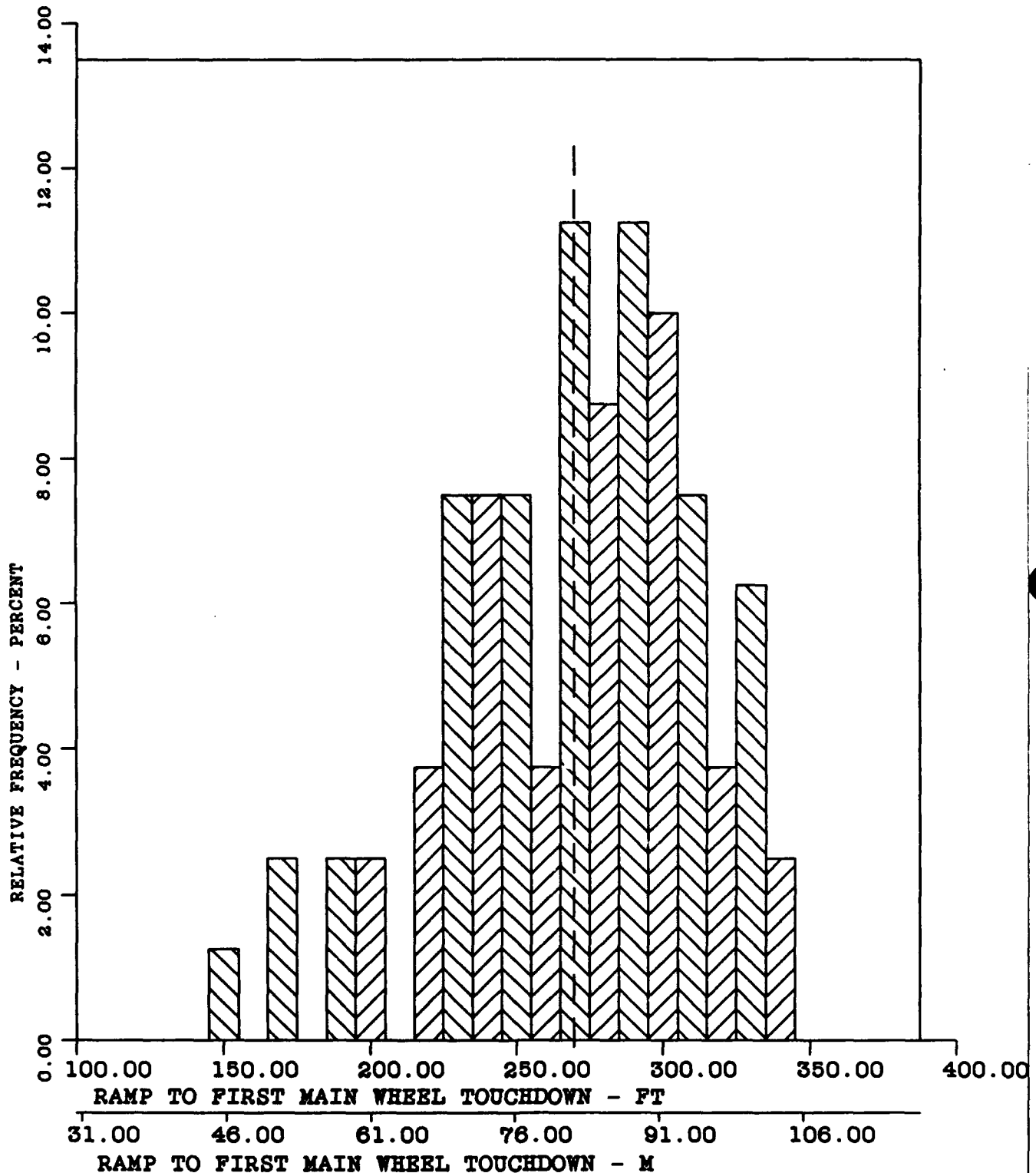


FIGURE M-27 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -269.56 FEET (82.16 METRES)

A3--0.63

S= 41.61 FEET (12.68 METRES)

A4=3.07

CURVE FITTED - PEARSON TYPE III

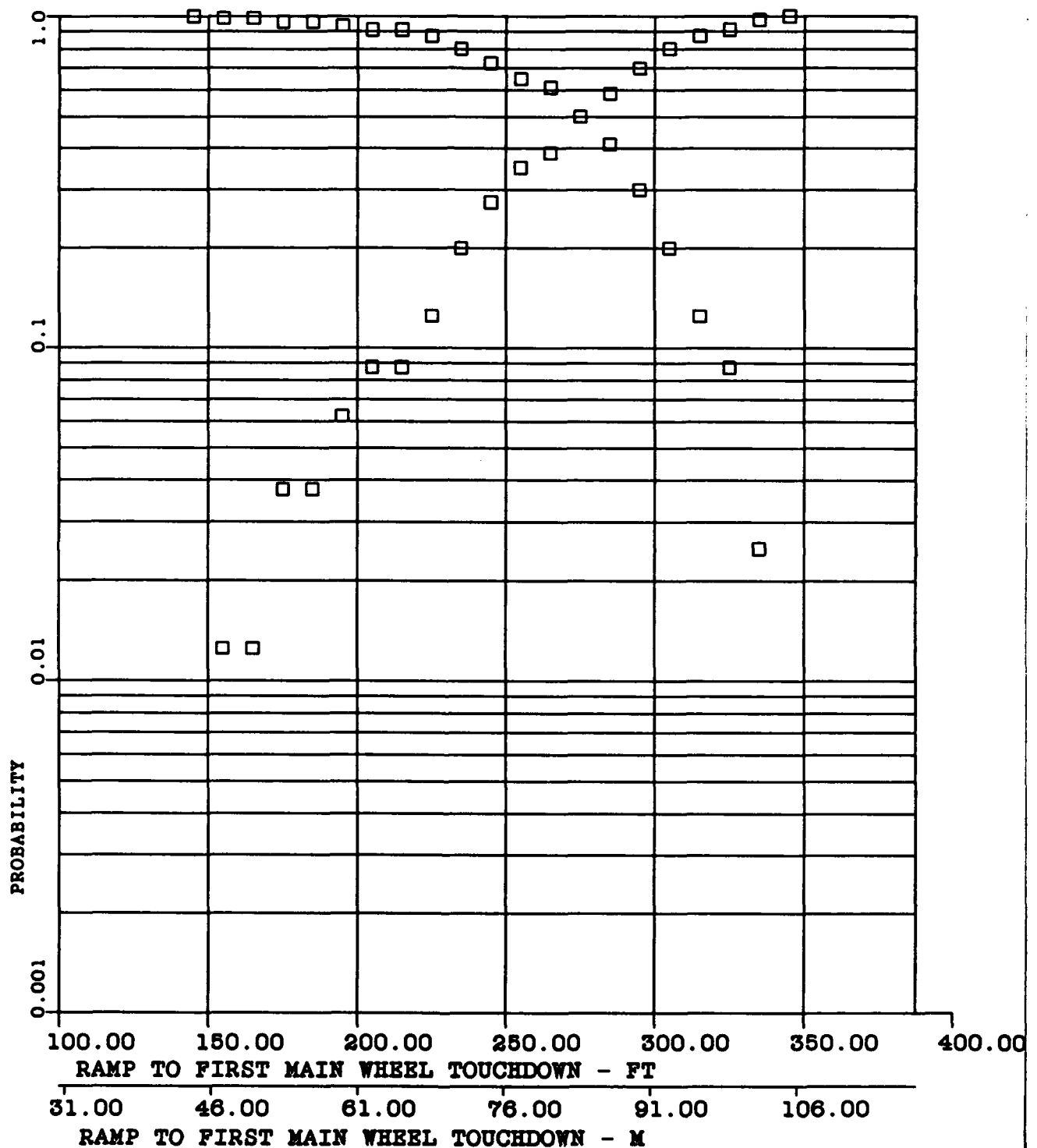


FIGURE M-28 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ --11.93 FEET (-3.63 METRES)

A3-0.73

S= 4.20 FEET (1.28 METRES)

A4-4.20

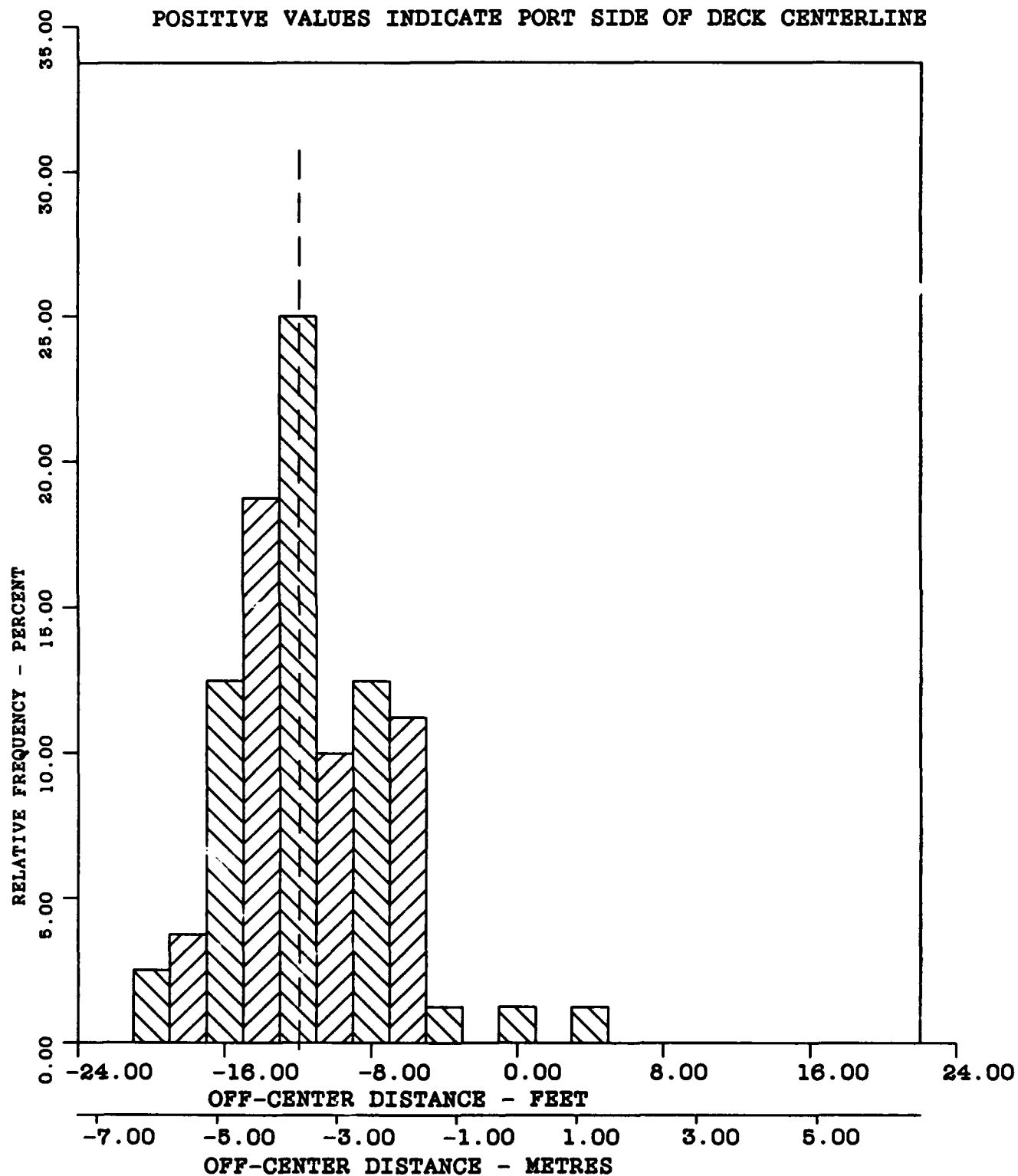


FIGURE M-28 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIAN)

N=80

 $\bar{X}$  = -11.93 FEET (-3.63 METRES)

A3=0.73

S = 4.20 FEET (1.28 METRES)

A4=4.20

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

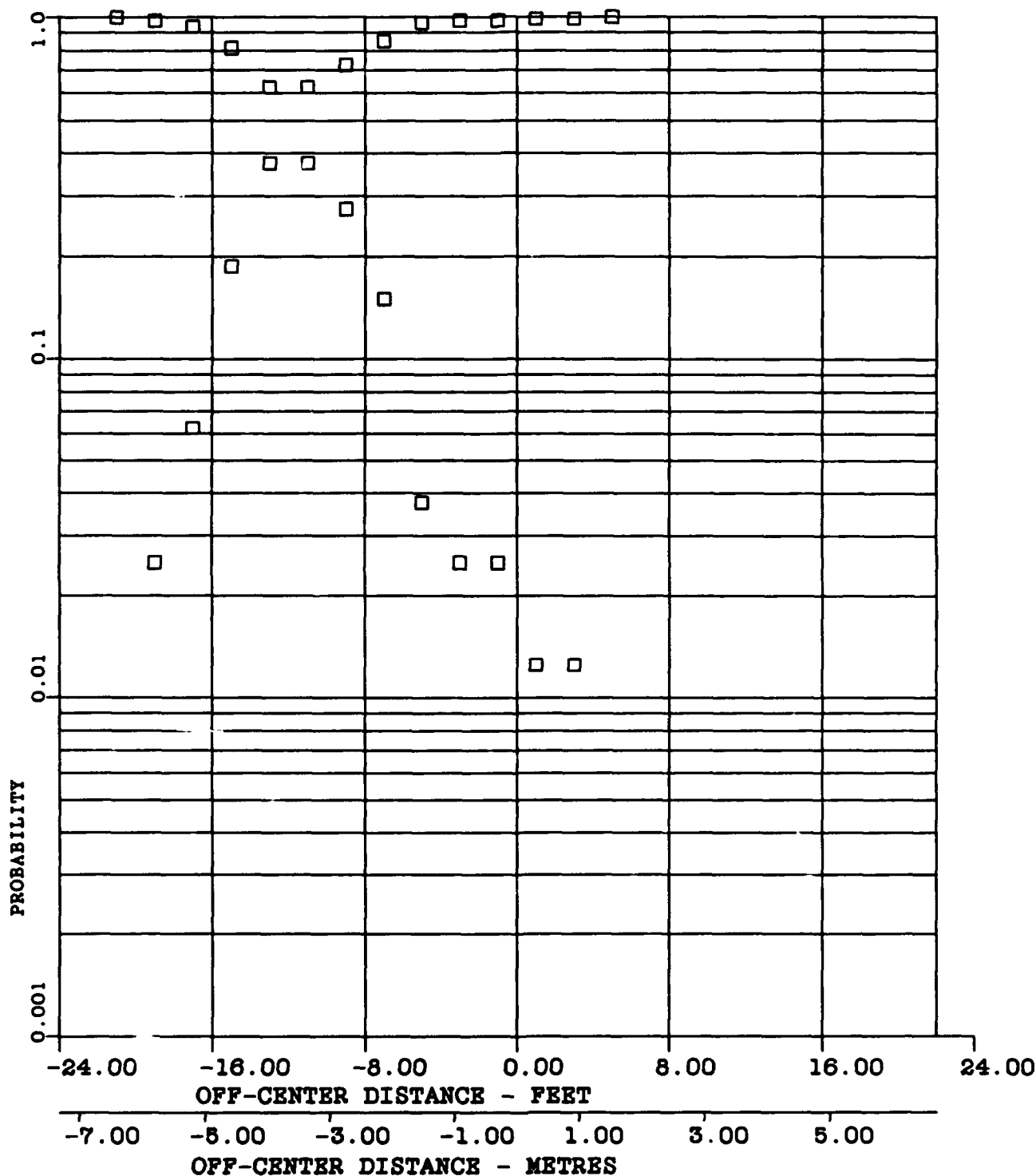


FIGURE M-29 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-71

 $\bar{X}$ -3.11

S= 0.62

A3--0.08

A4-2.56

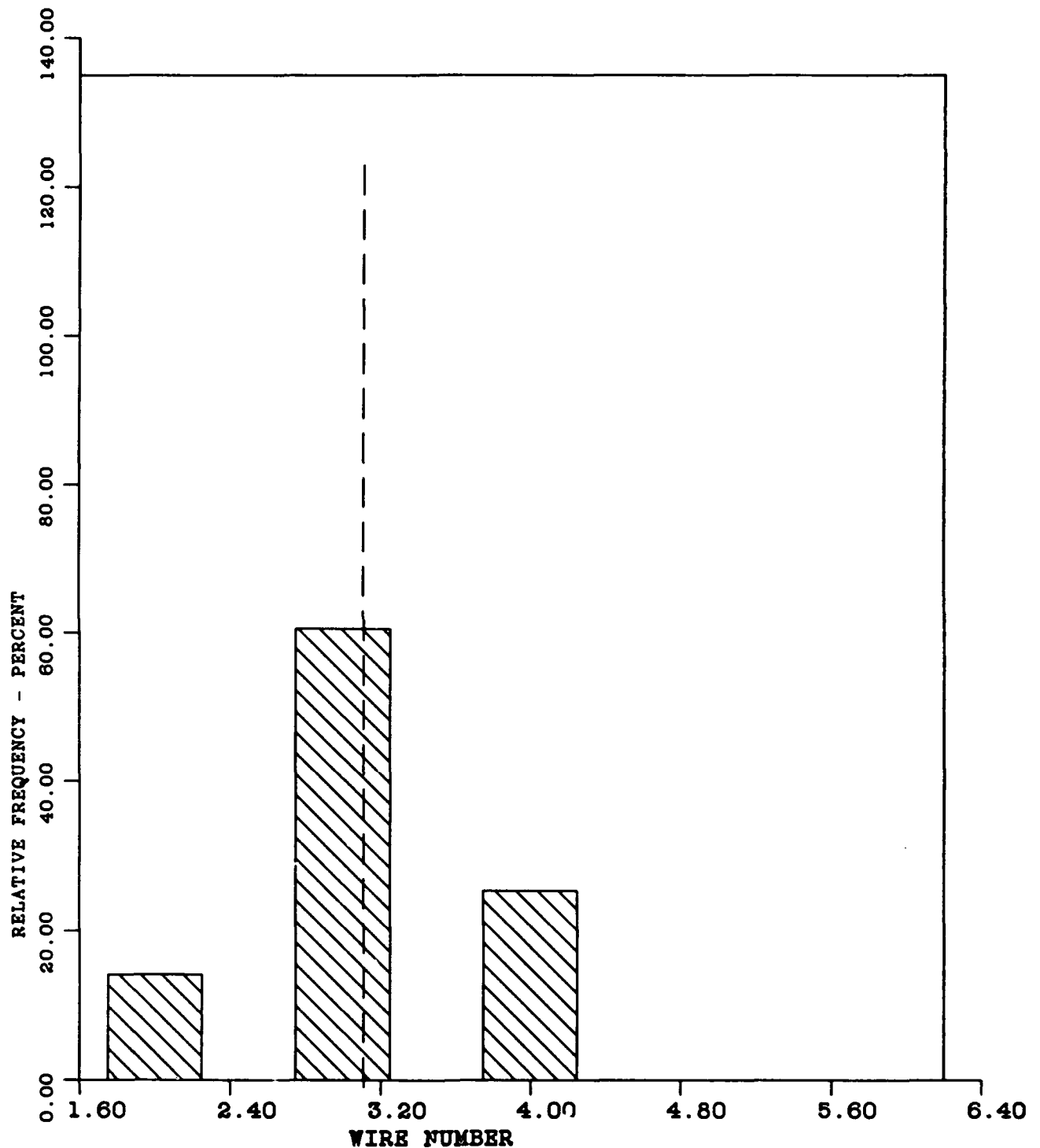


FIGURE M-30 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -3.19 DEGREES (0.056 RADIANS)

A3-0.03

S- 0.89 DEGREES (0.016 RADIANS)

A4-3.45

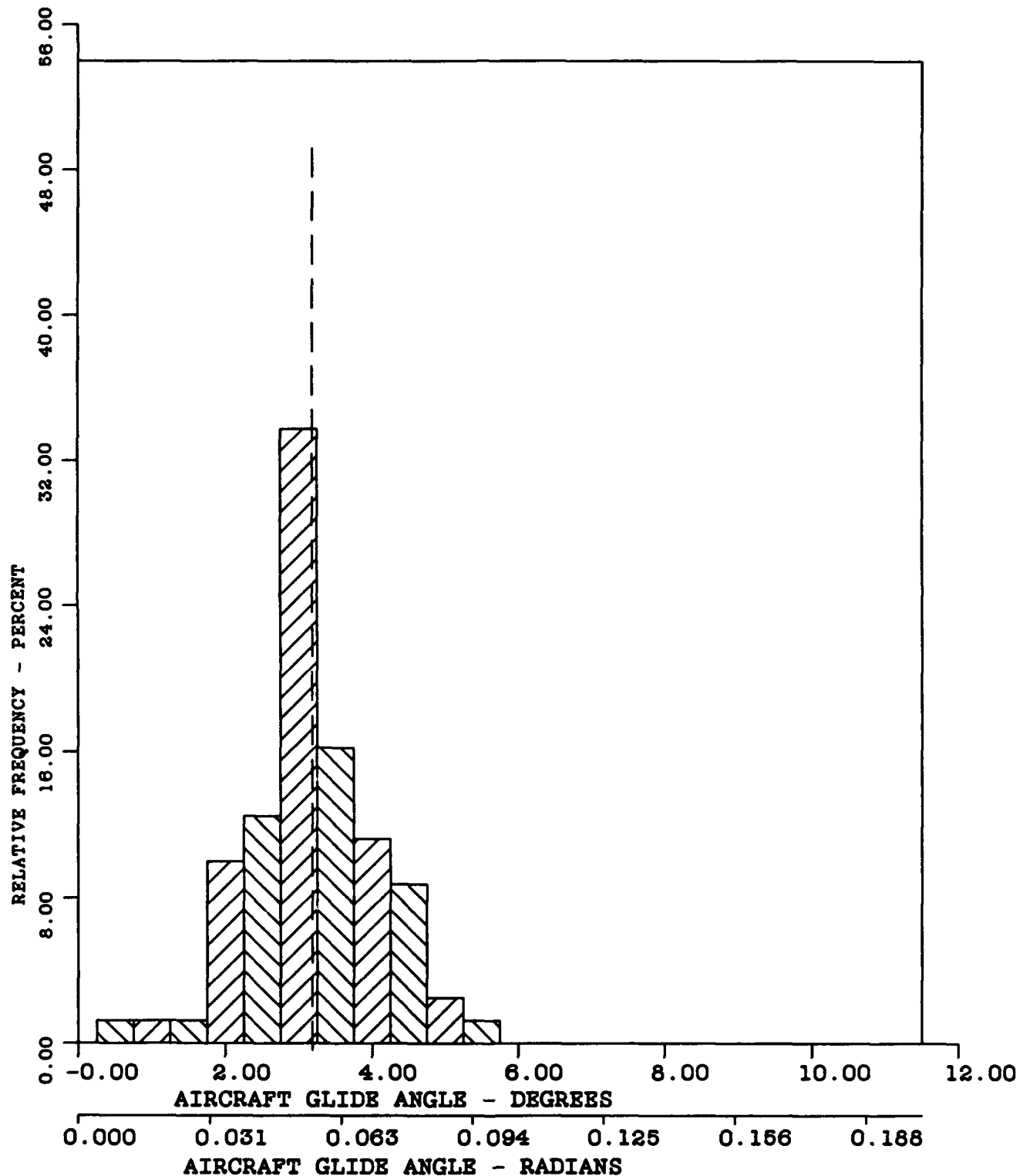


FIGURE M-31 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -84.61 KNOTS (43.52 METRES/SEC)

A3--0.06

S- 5.04 KNOTS (2.59 METRES/SEC)

A4-3.72

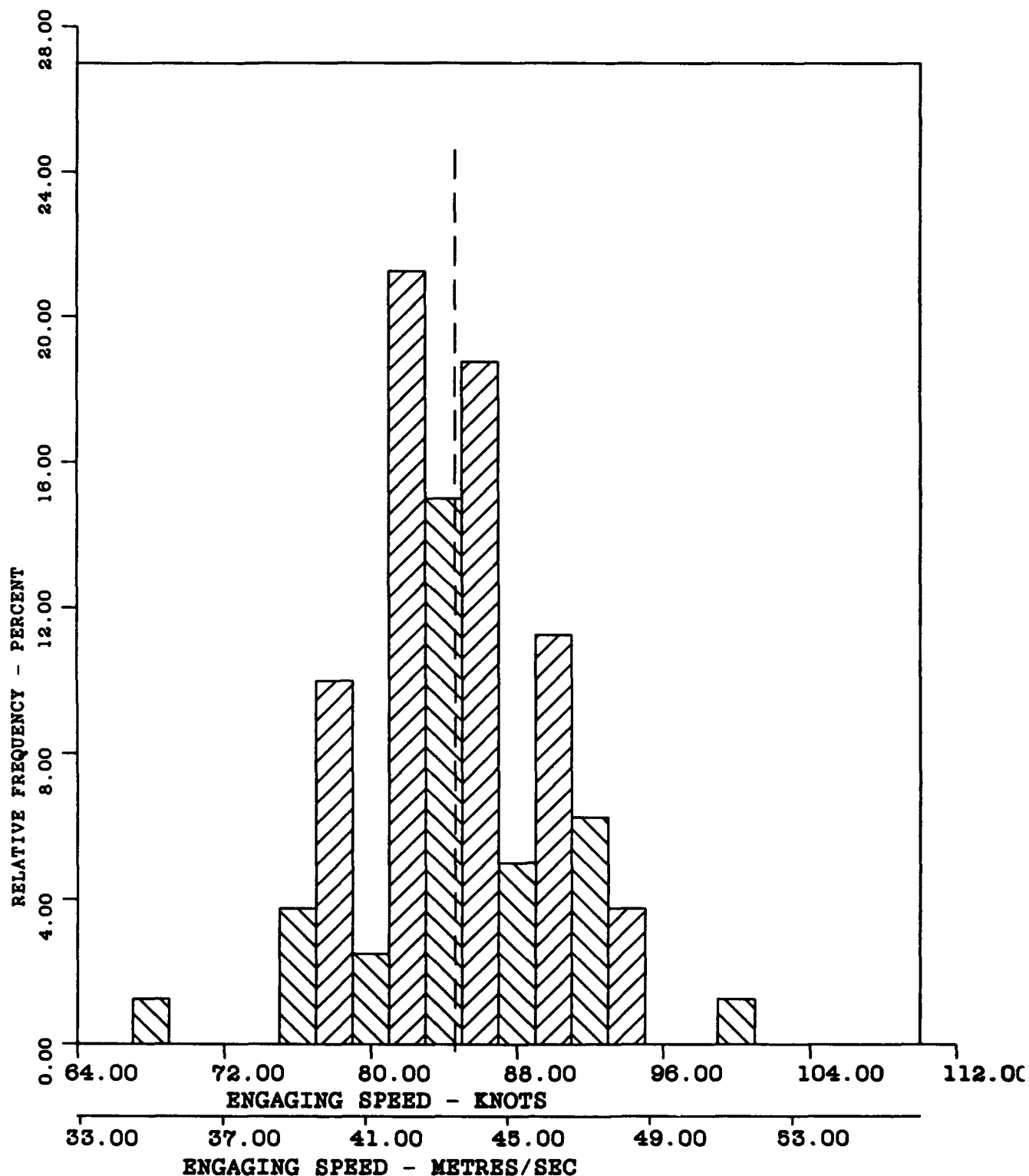


FIGURE M-32 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIAN)

N-80

 $\bar{X}$ -84.61 KNOTS (43.82 METRES/SEC)

A3--0.06

S- 5.04 KNOTS (2.59 METRES/SEC)

A4-3.72

CURVE FITTED - NORMAL

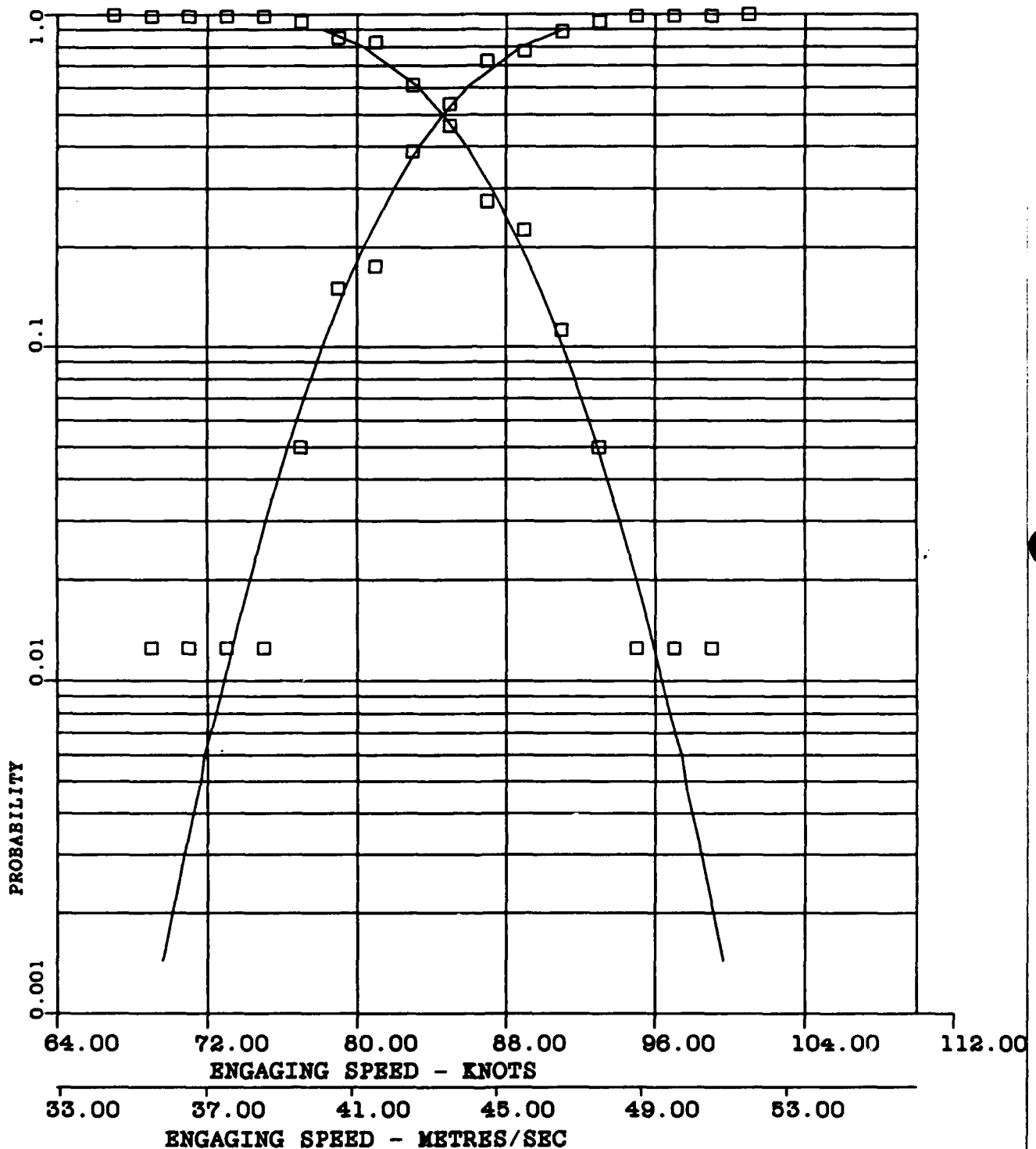


FIGURE M-33 PROBABILITY DISTRIBUTION OF ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -85.91 KNOTS (44.19 METRES/SEC)

A3-0.80

S- 1.03 KNOTS (0.53 METRES/SEC)

A4-4.28

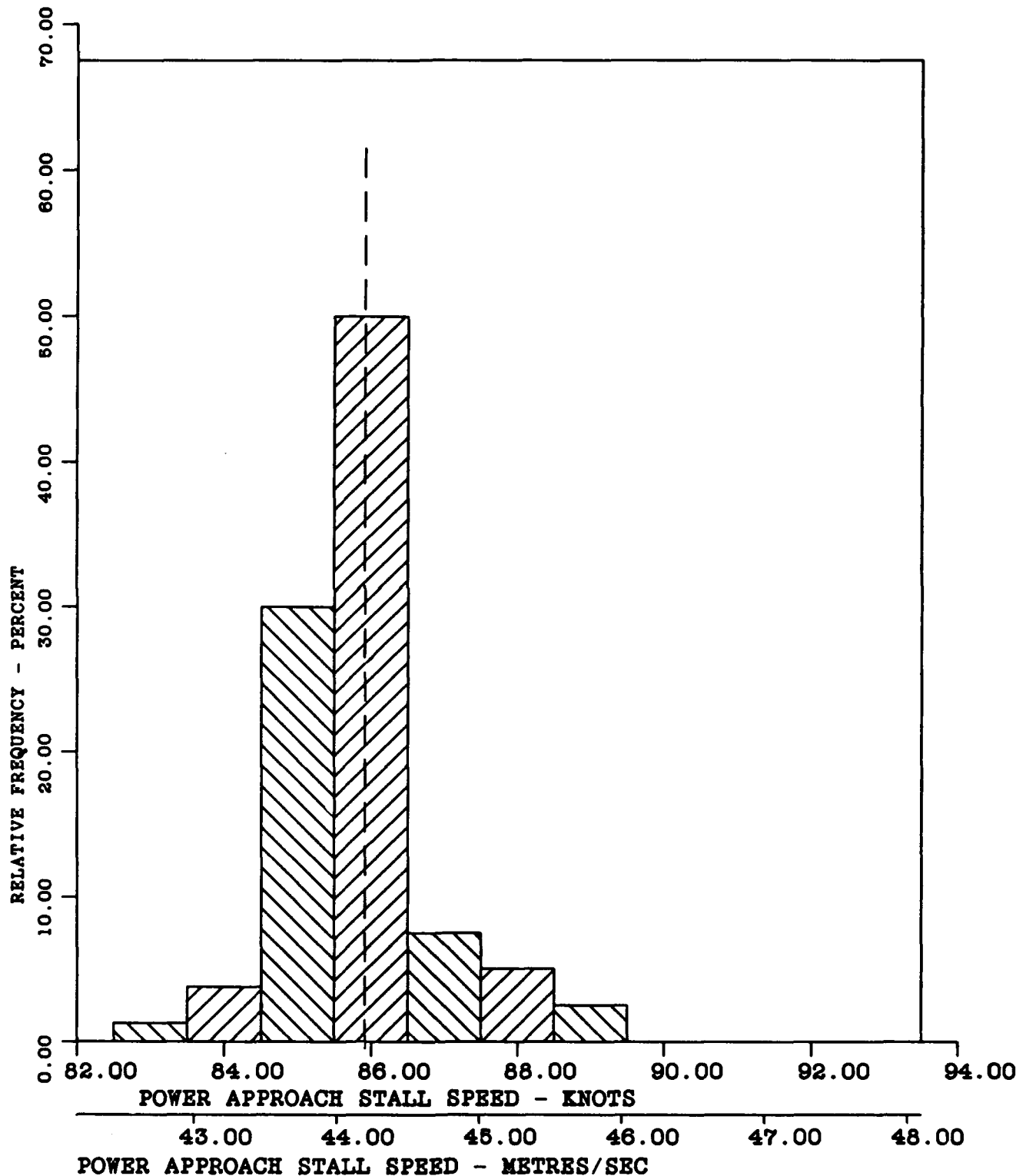


FIGURE M-34 FREQUENCY DISTRIBUTION OF POWER  
APPROACH STALL SPEED

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-68)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -1.26

A3-0.23

S- 0.06

A4-2.83

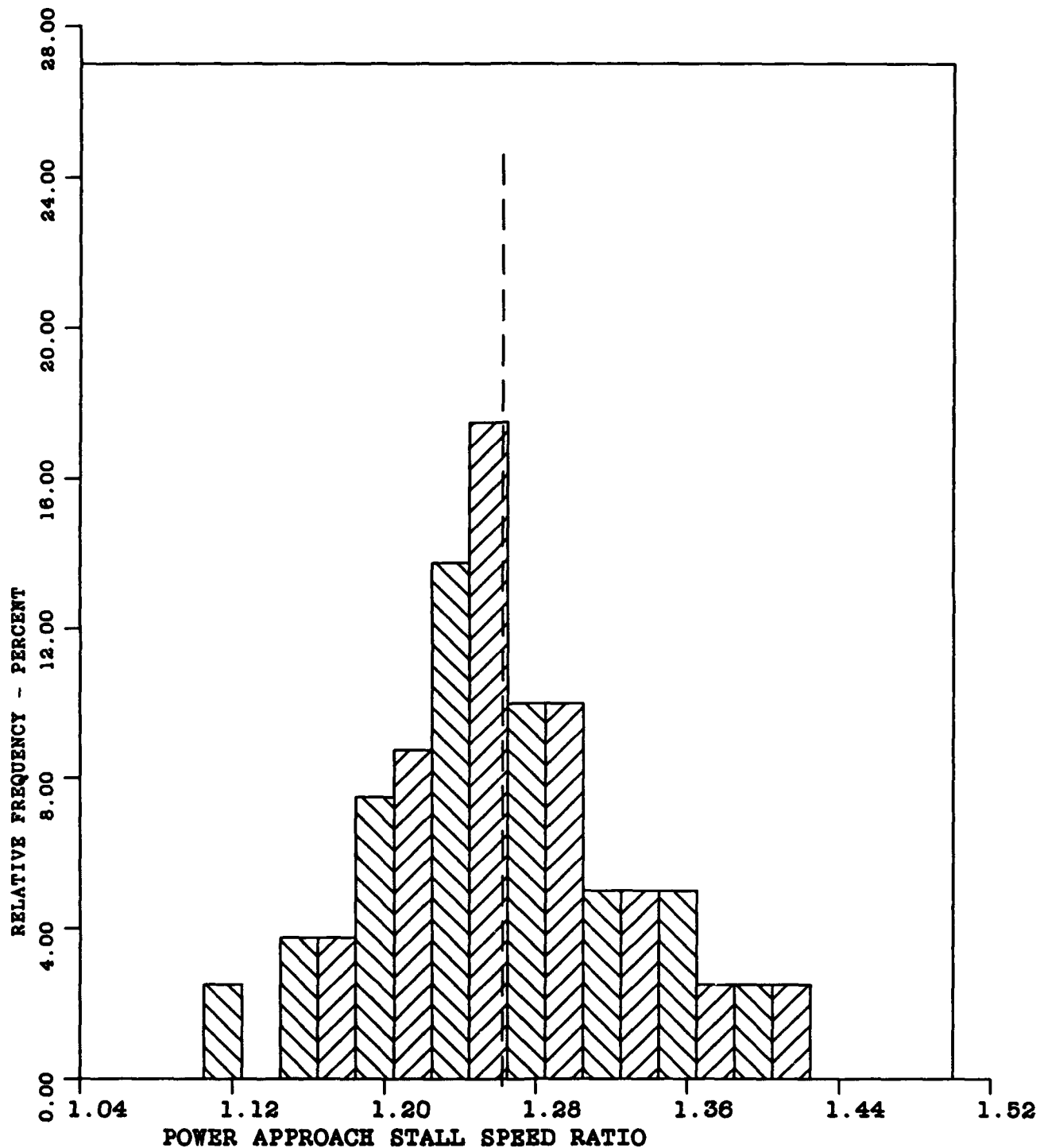


FIGURE M-35 FREQUENCY DISTRIBUTION OF POWER  
APPROACH STALL SPEED RATIO

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -0.04 DEGREES (0.001 RADIANS)

A3--0.64

S- 0.92 DEGREES (0.016 RADIANS)

A4-3.41

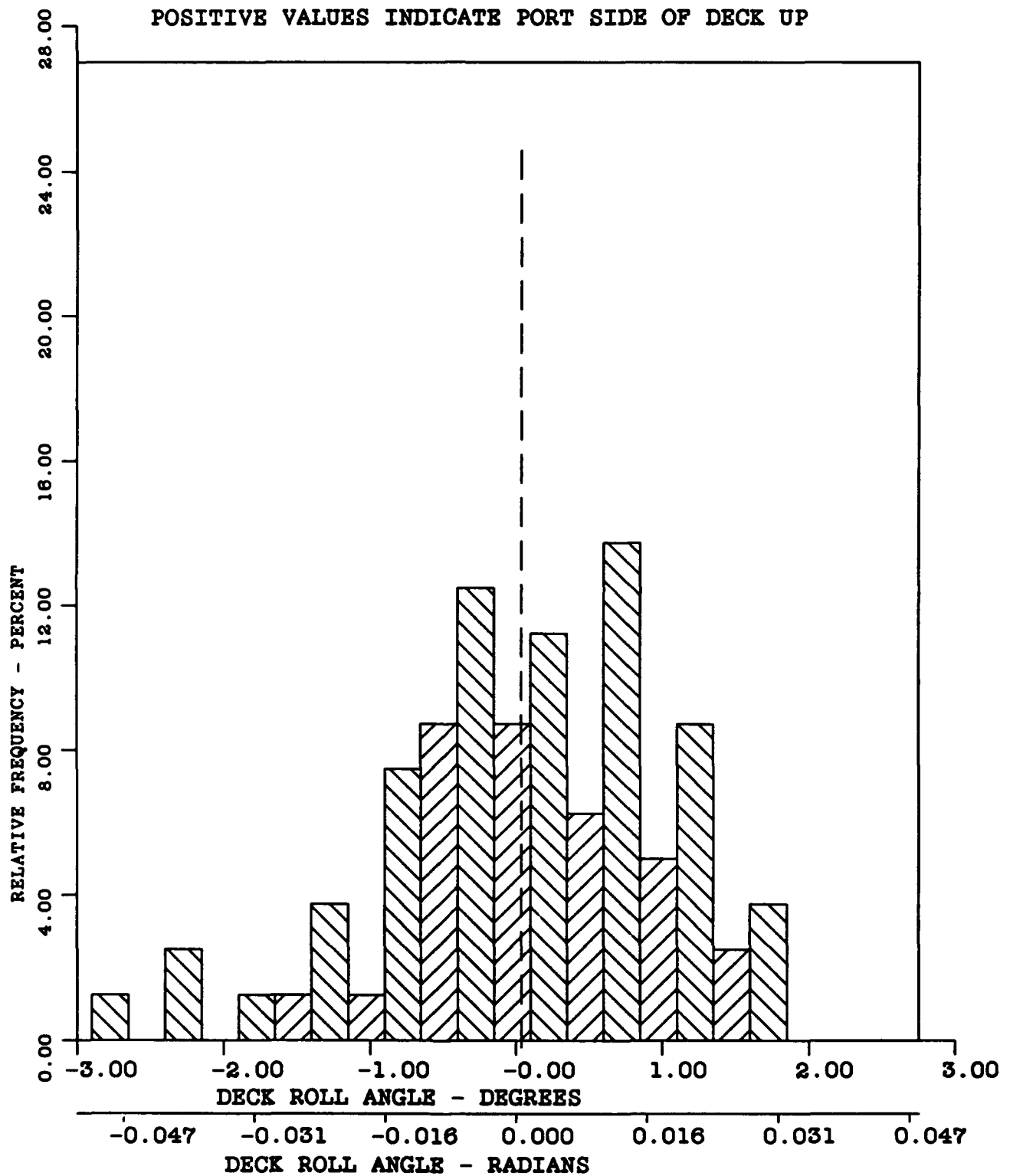


FIGURE M-36 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (0.061 RADIAN)

N-80

 $\bar{X}$ -0.04 DEGREES (0.001 RADIAN)

A3--0.64

S= 0.92 DEGREES (0.016 RADIAN)

A4-3.41

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

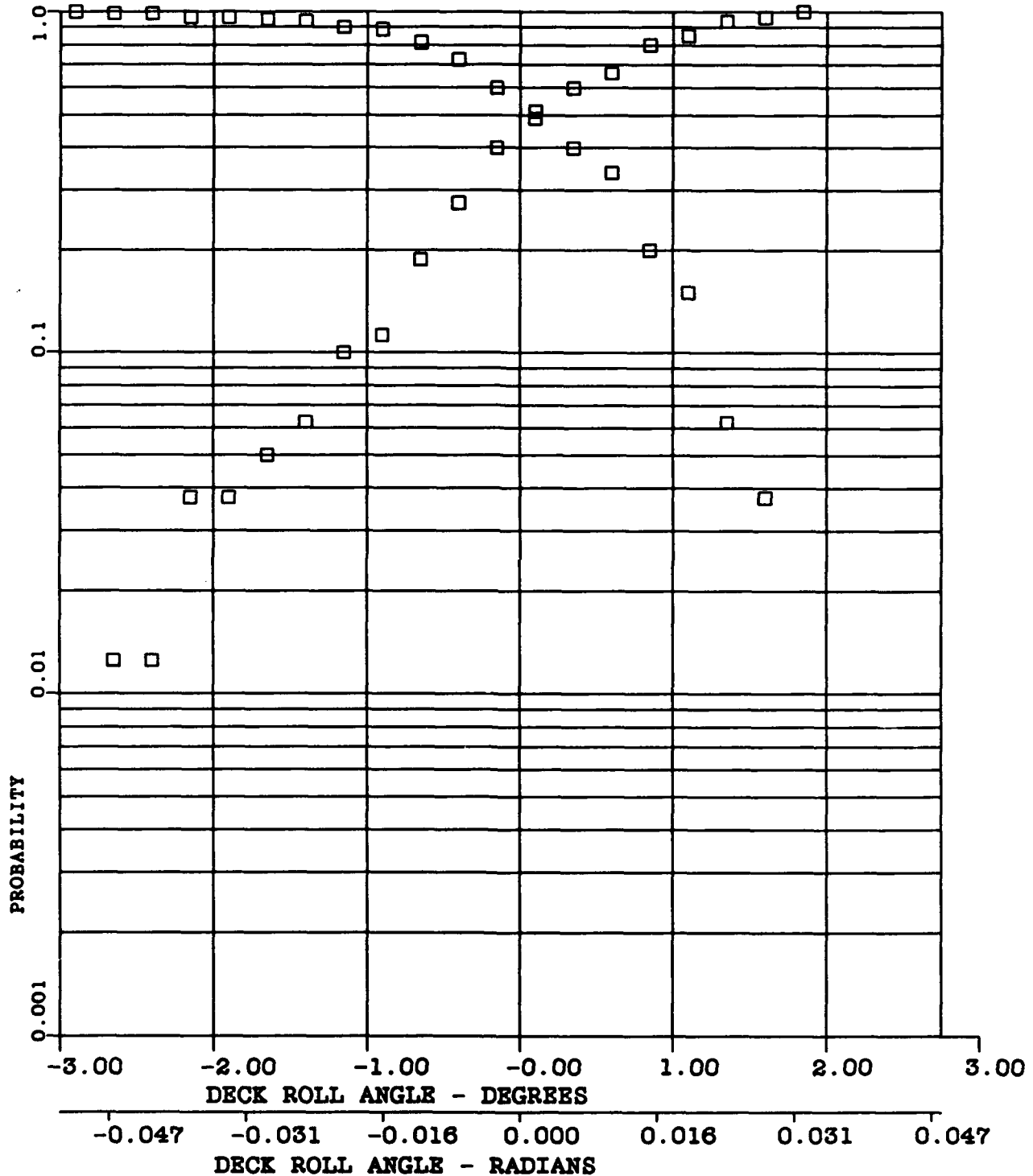


FIGURE M-37 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ --0.15 DEGREES (-0.003 RADIANS)

A3-0.50

S- 0.16 DEGREES (0.003 RADIANS)

A4-3.67

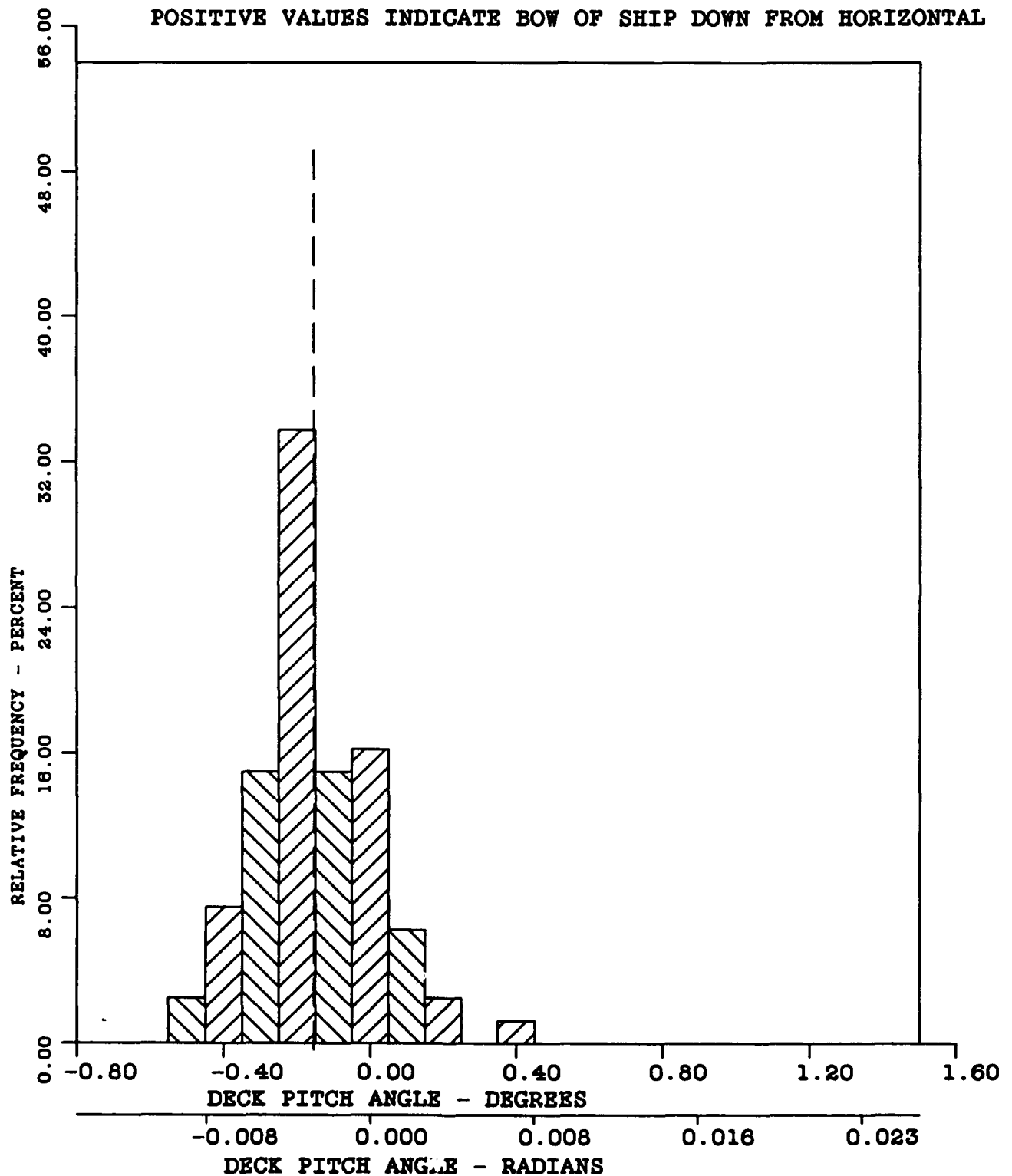


FIGURE M-38 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -0.15 DEGREES (-0.003 RADIANS)

A3-0.50

S= 0.16 DEGREES (0.003 RADIANS)

A4-3.67

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

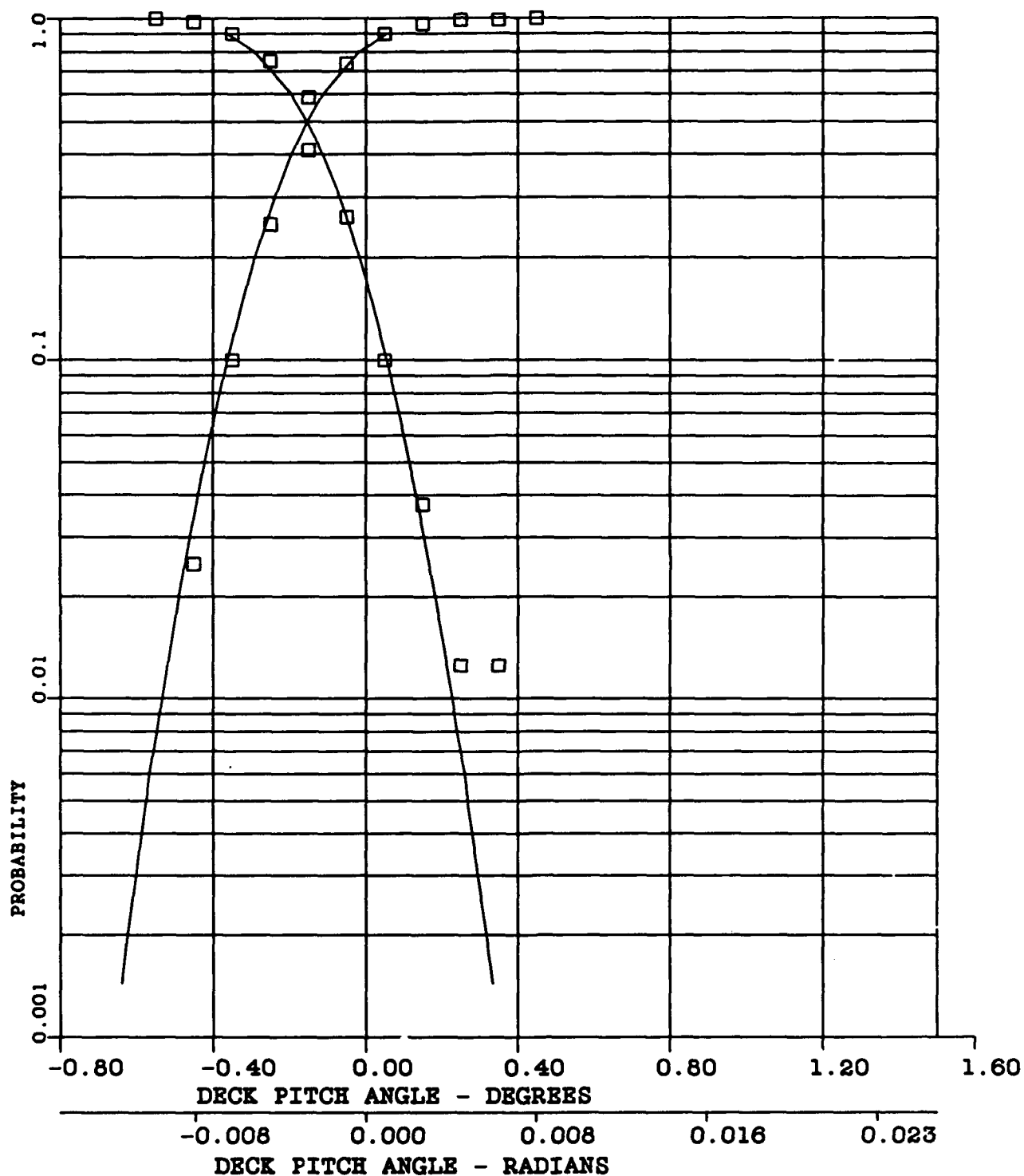


FIGURE M-39 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -43281.10 POUNDS (19632.31 KILOGRAMS)

A3-0.84

S- 1047.45 POUNDS (475.12 KILOGRAMS)

A4-4.36

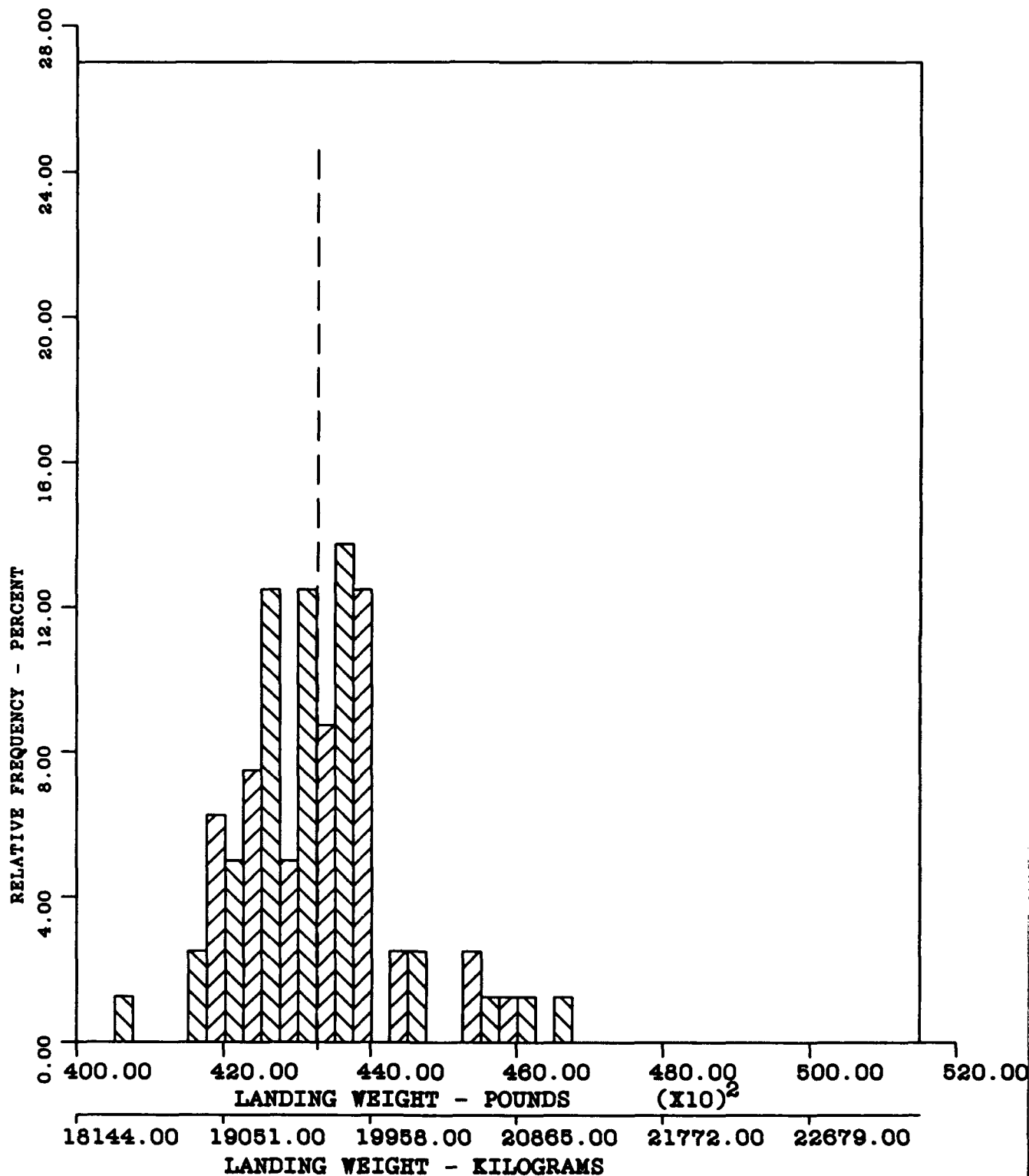


FIGURE M-40 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -1.12 DEG/SEC (0.020 RAD/SEC)

A3--0.68

S- 4.95 DEG/SEC (0.086 RAD/SEC)

A4-4.17

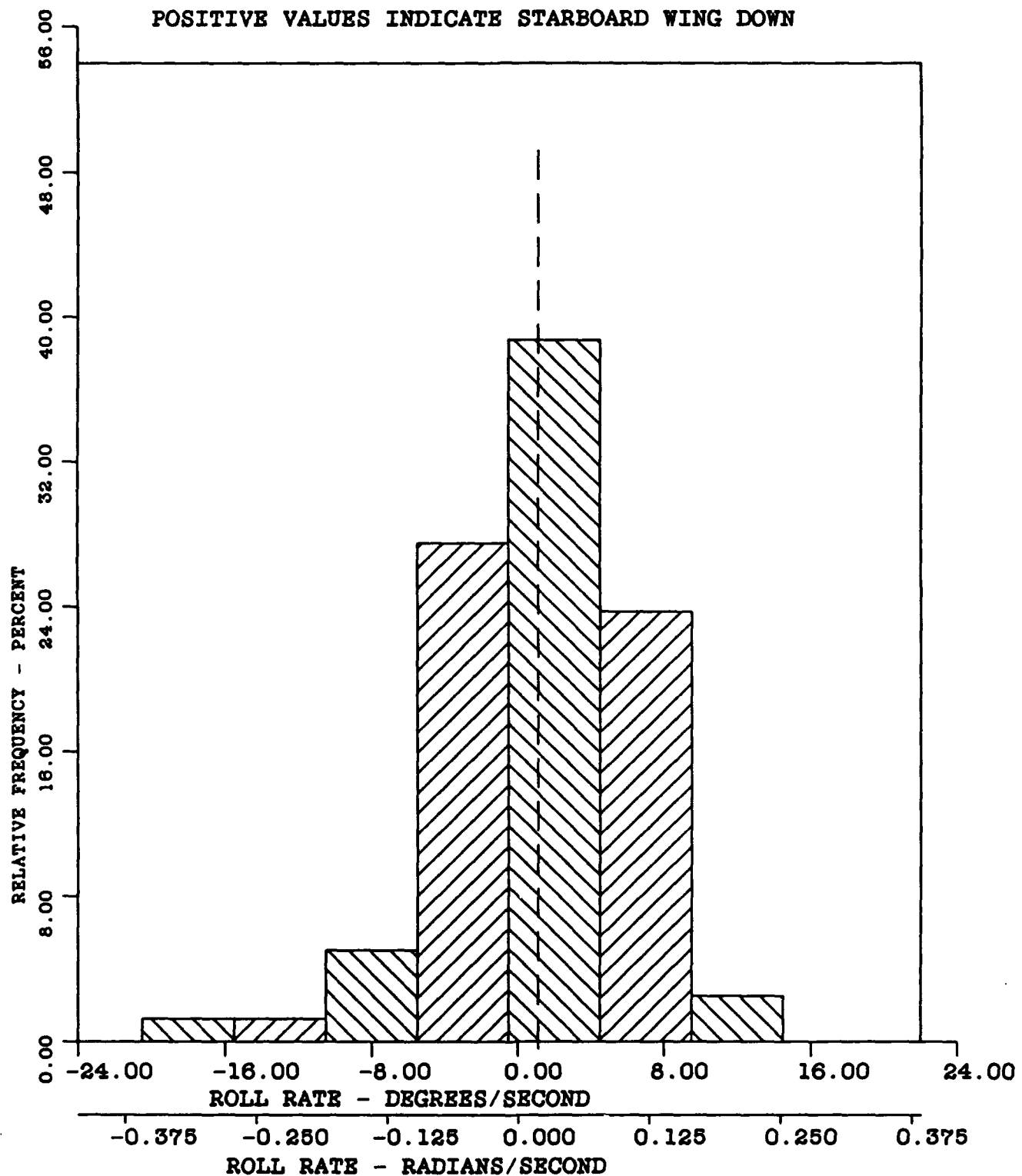


FIGURE M-41 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -1.12 DEG/SEC (0.020 RAD/SEC)

A3=-0.68

S= 4.95 DEG/SEC (0.086 RAD/SEC)

A4=4.17

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

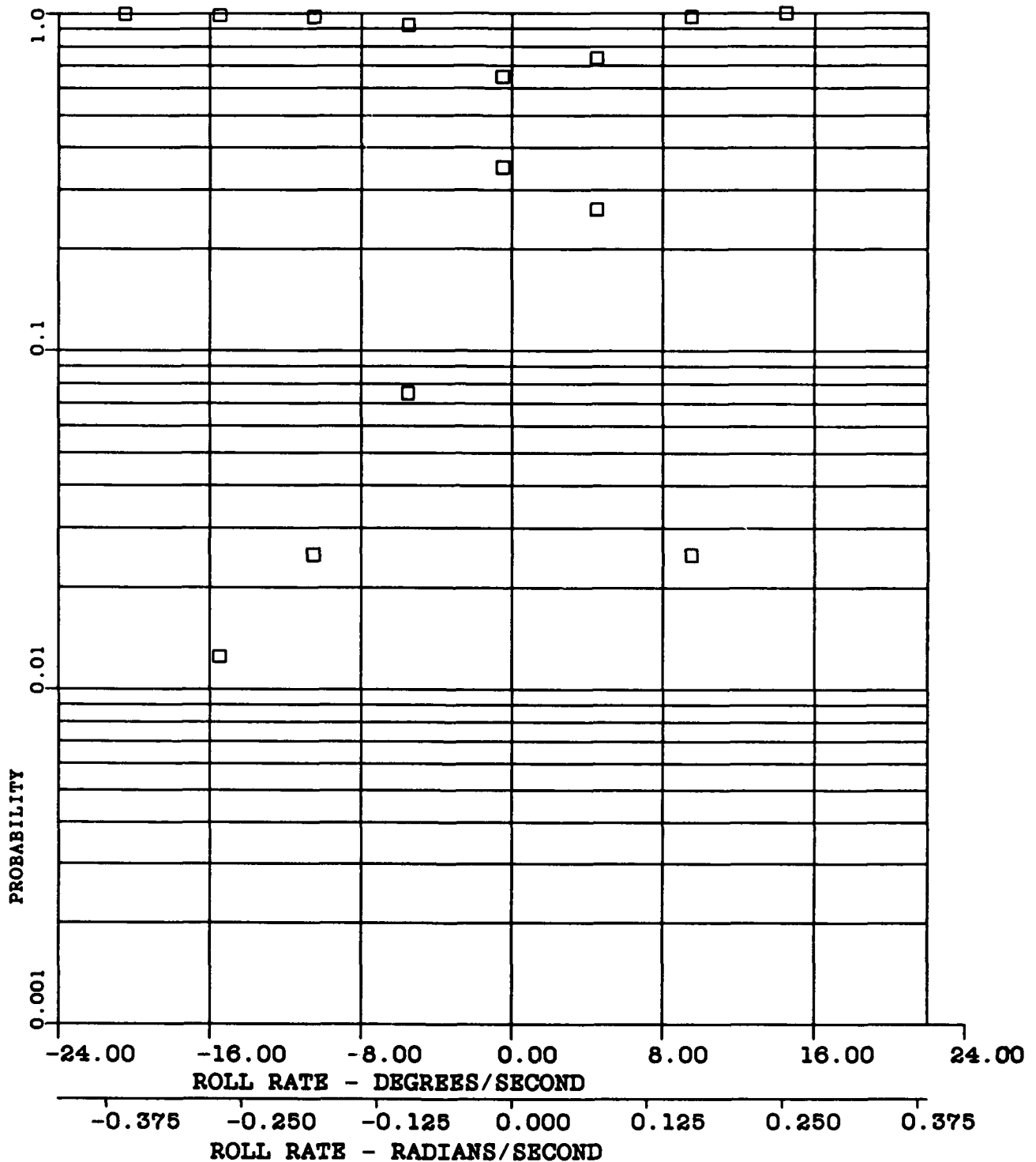


FIGURE M-42 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIAN)

N-80

 $\bar{X}$ -0.16 DEG/SEC (0.003 RAD/SEC)

A3-0.15

S- 1.98 DEG/SEC (0.035 RAD/SEC)

A4-4.48

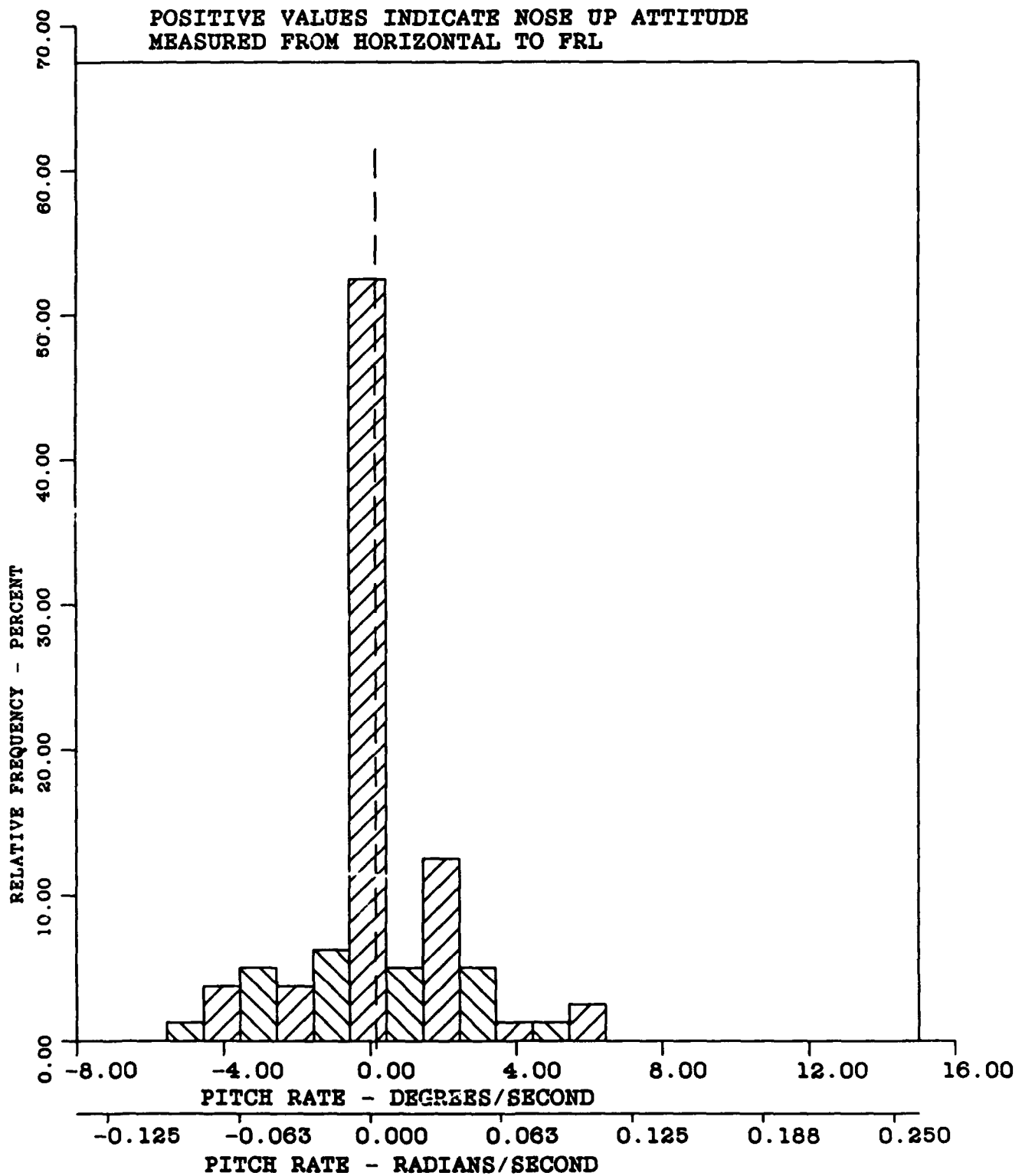


FIGURE M-43 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -0.16 DEG/SEC (0.003 RAD/SEC)

A3-0.15

S- 1.98 DEG/SEC (0.035 RAD/SEC)

A4-4.48

CURVE FITTED - NORMAL

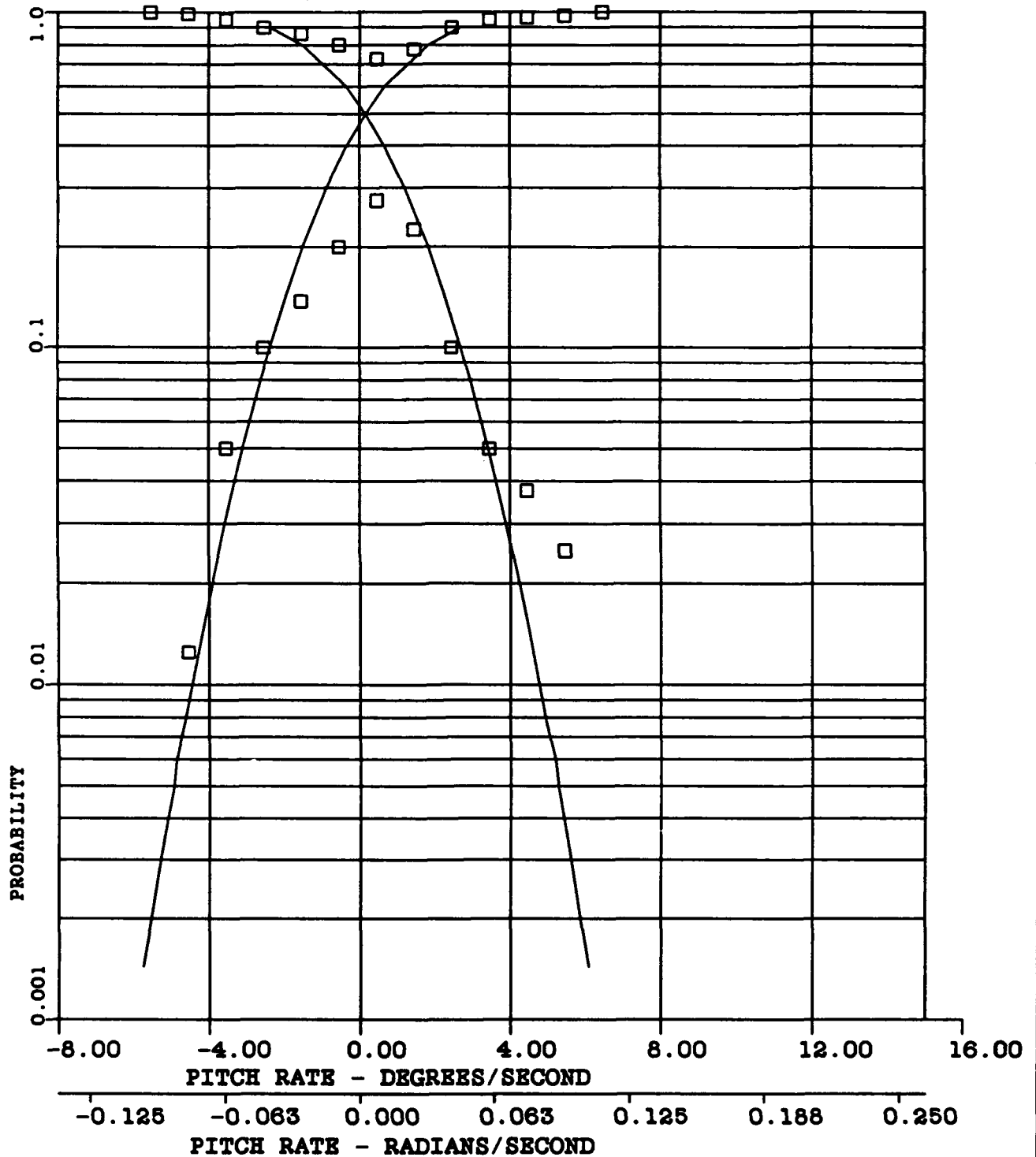
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE M-44 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -3.46 DEGREES (-0.060 RADIANS)

A3-1.13

S- 2.22 DEGREES (0.039 RADIANS)

A4-4.39

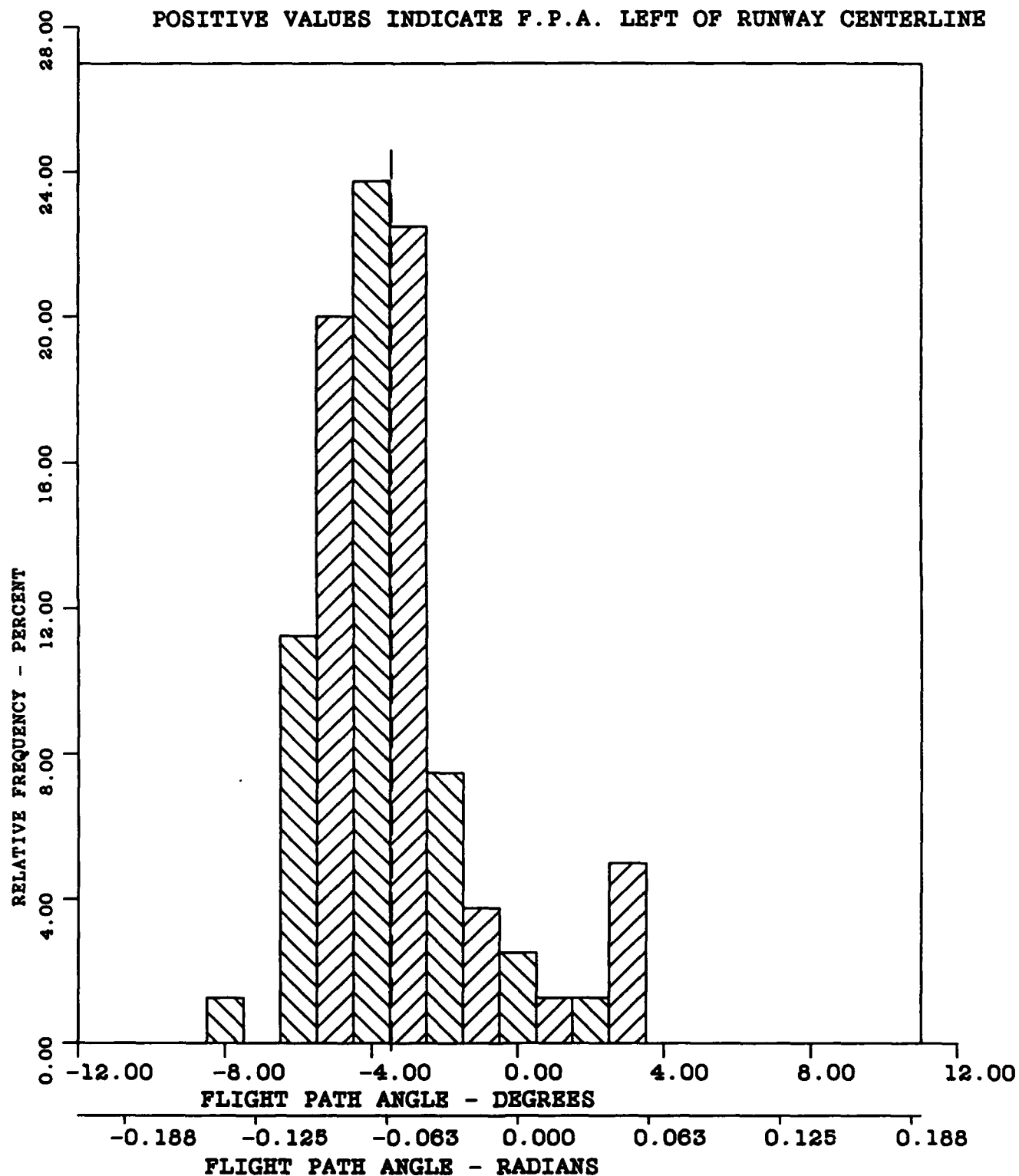


FIGURE M-45 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$  = -3.46 DEGREES (-0.060 RADIANS)

A3-1.13

S = 2.22 DEGREES (0.039 RADIANS)

A4-4.39

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

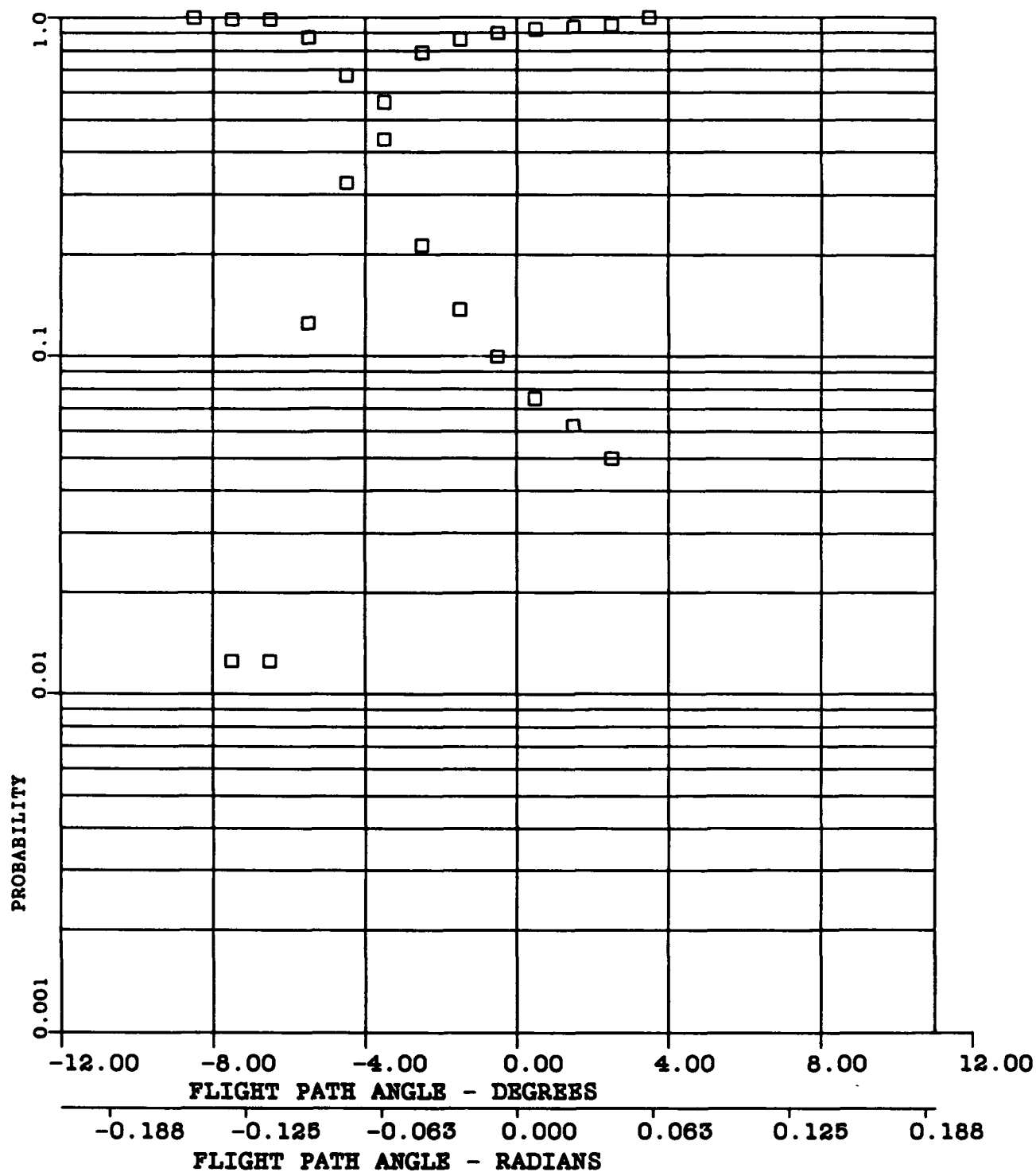


FIGURE M-46 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -4.02 DEGREES (0.070 RADIANS)

A3--0.80

S- 3.26 DEGREES (0.057 RADIANS)

A4-3.50

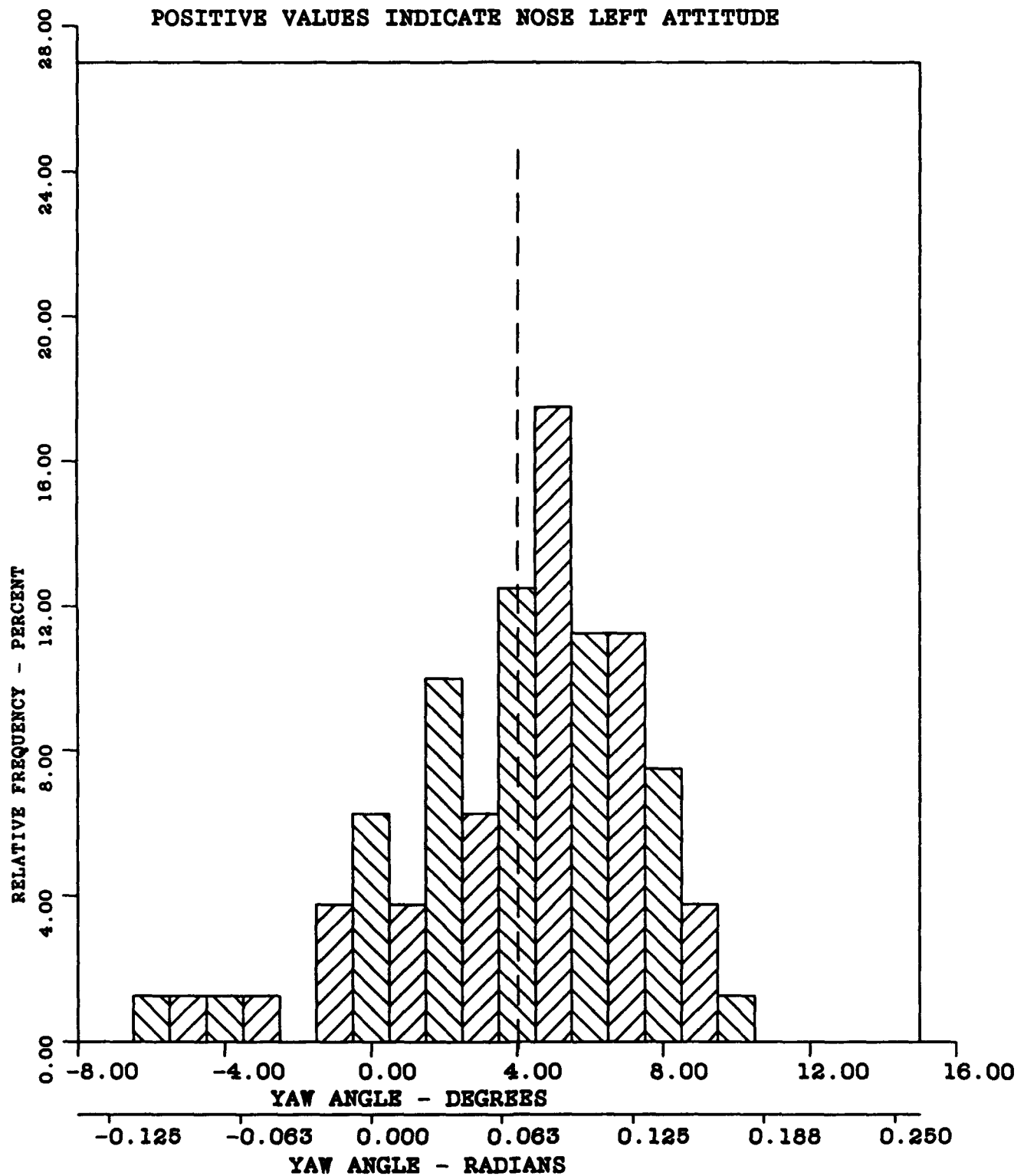


FIGURE M-47 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE



MODEL E-2C AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-80

 $\bar{X}$ -4.02 DEGREES (0.070 RADIANS)

A3--0.80

S- 3.26 DEGREES (0.057 RADIANS)

A4-3.50

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

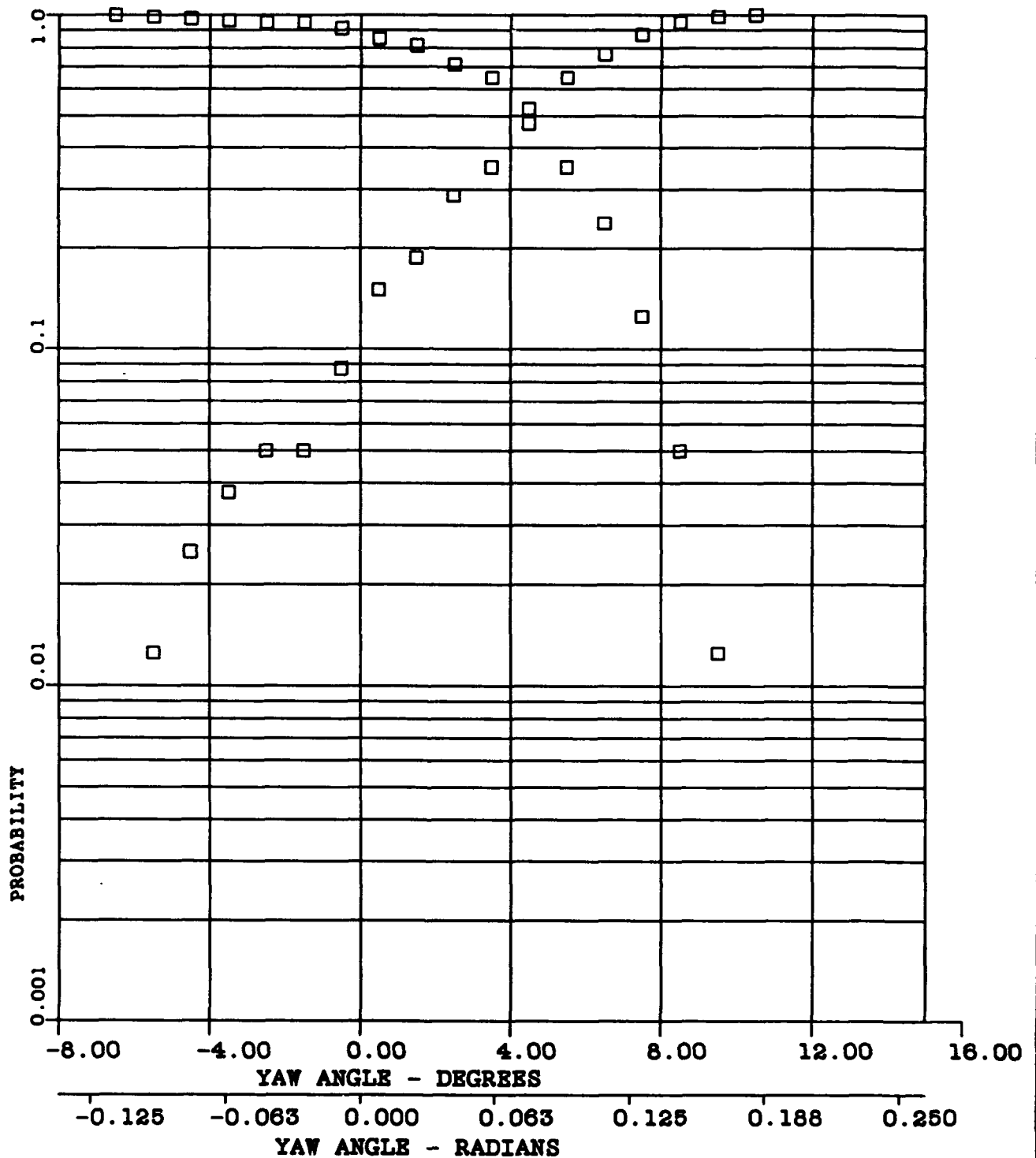


FIGURE M-48 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX N**

## **S-3A AIRCRAFT DAY CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

## Appendix N:

Frequency and Probability Distributions,  
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MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -27.88 KNOTS (14.34 METRES/SEC)

A3-0.29

S- 4.58 KNOTS (2.35 METRES/SEC)

A4-3.00

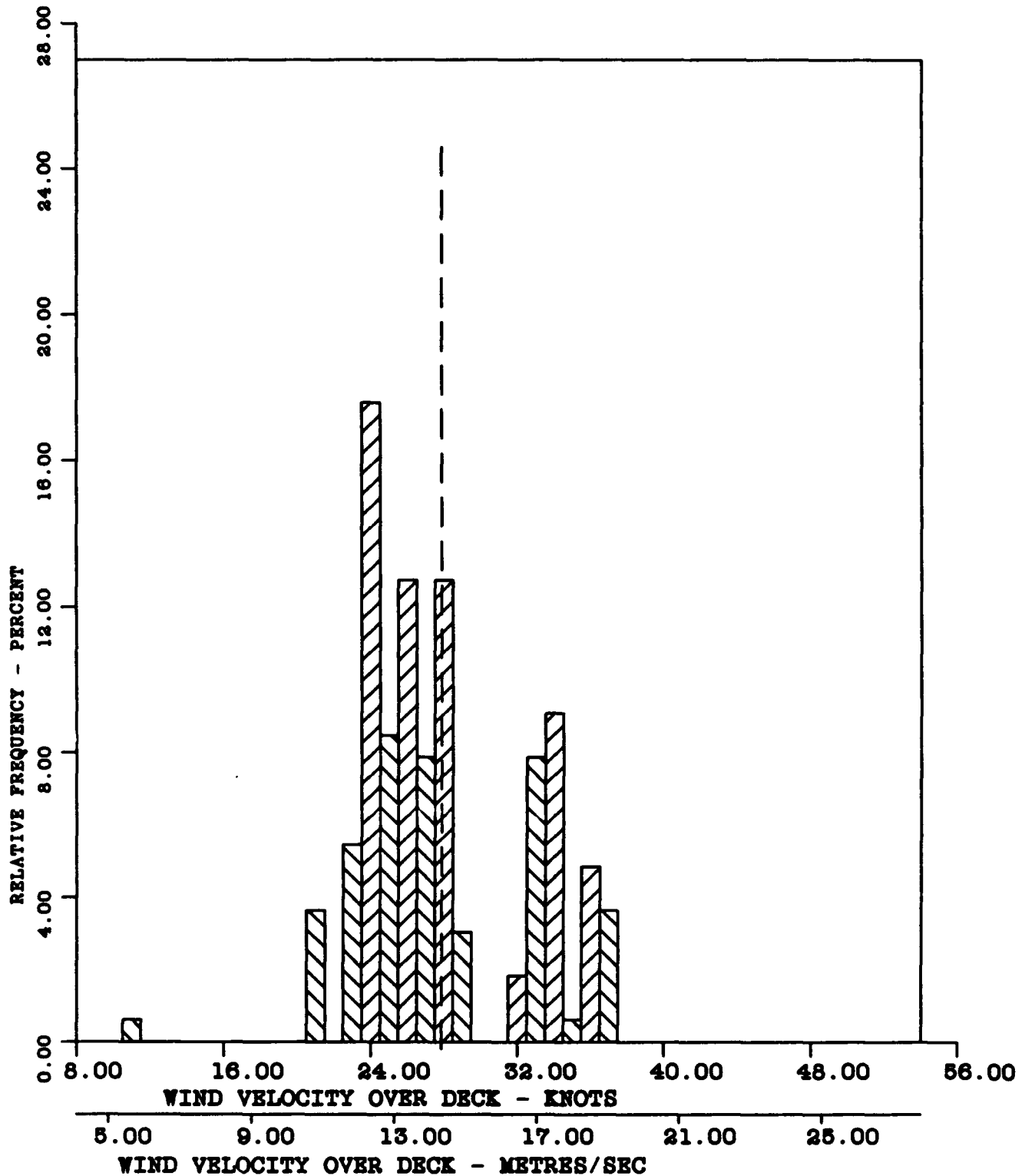


FIGURE N-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -27.88 KNOTS (14.34 METRES/SEC)

A3-0.29

S- 4.58 KNOTS (2.35 METRES/SEC)

A4-3.00

CURVE FITTED - NORMAL

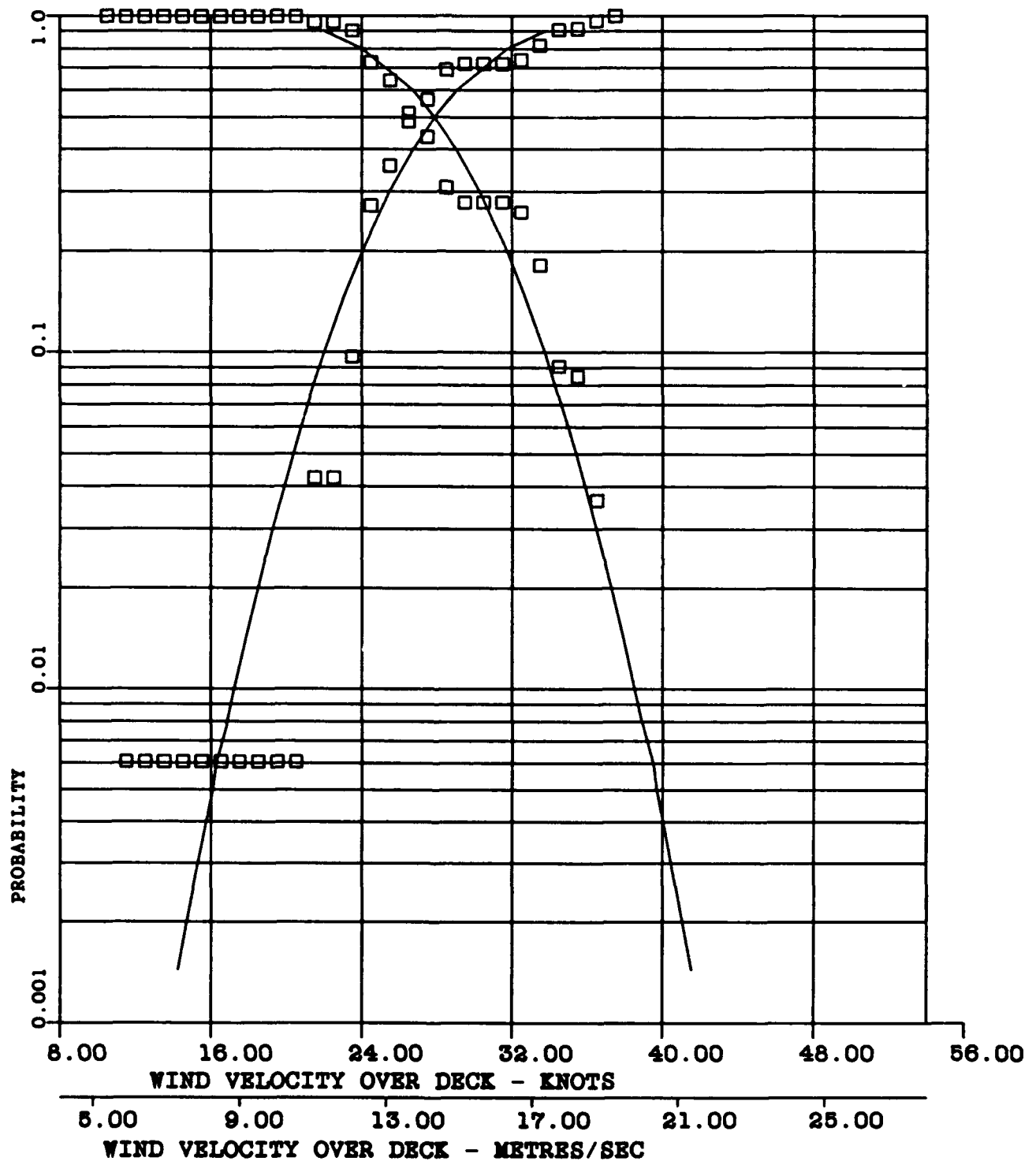


FIGURE N-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -121.69 KNOTS (62.60 METRES/SEC)

A3--0.21

S- 4.75 KNOTS (2.44 METRES/SEC)

A4-2.54

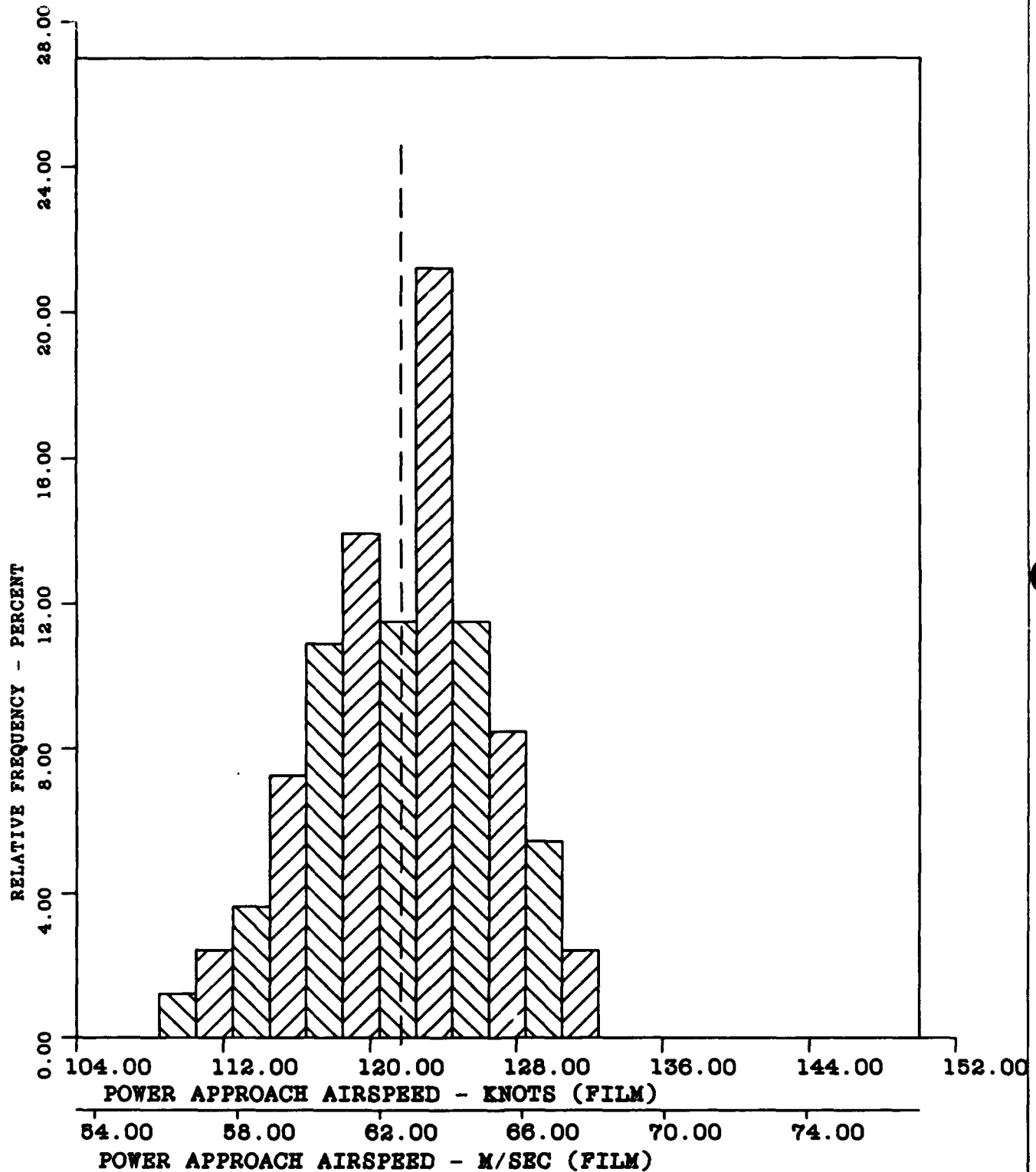


FIGURE N-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -121.69 KNOTS (62.60 METRES/SEC)

A3--0.21

S- 4.75 KNOTS (2.44 METRES/SEC)

A4-2.54

CURVE FITTED - NORMAL

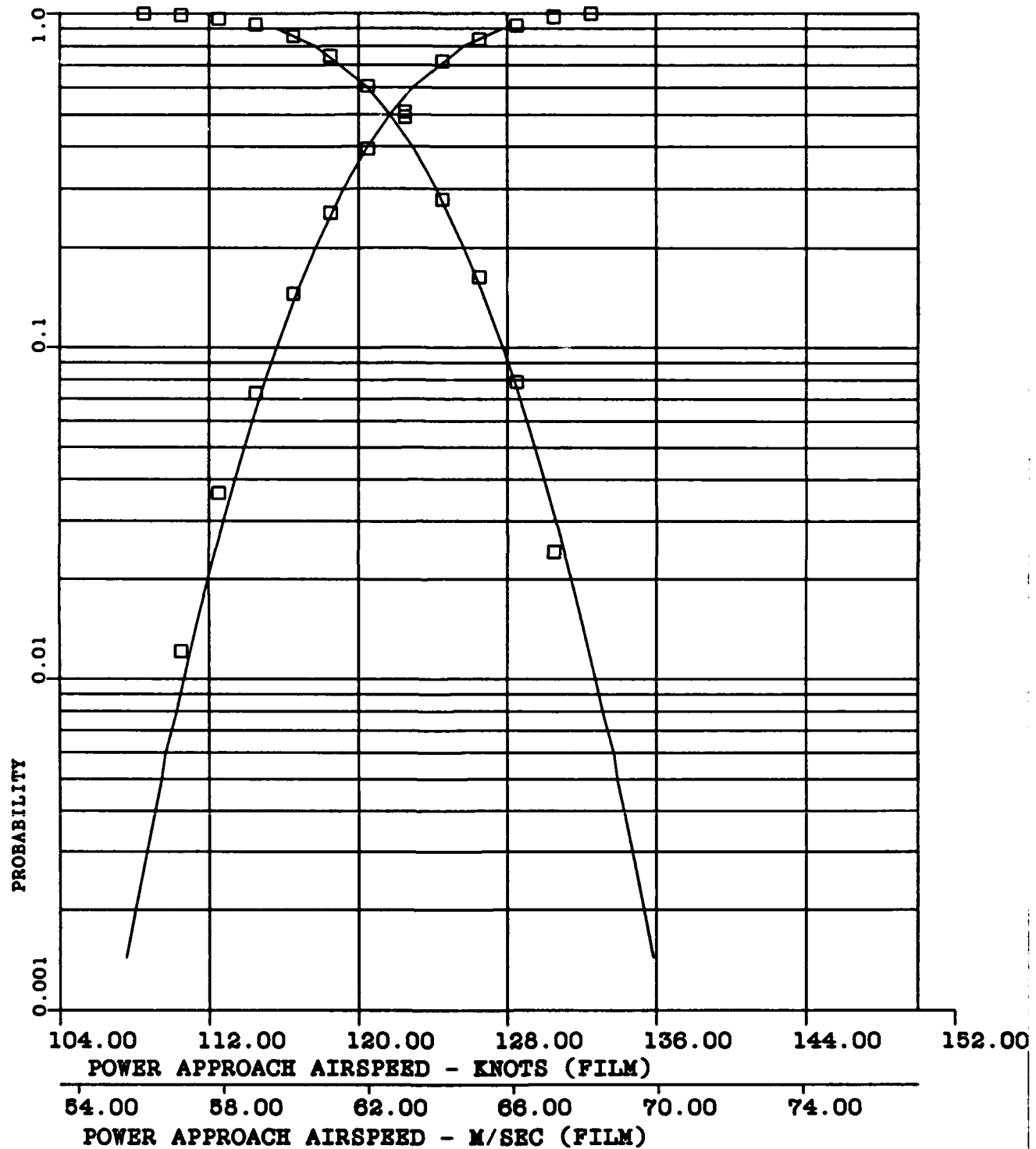


FIGURE N-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-161

 $\bar{X}$ -15.52 FEET (4.73 METRES)

A3-0.71

S- 2.56 FEET (0.78 METRES)

A4-3.57

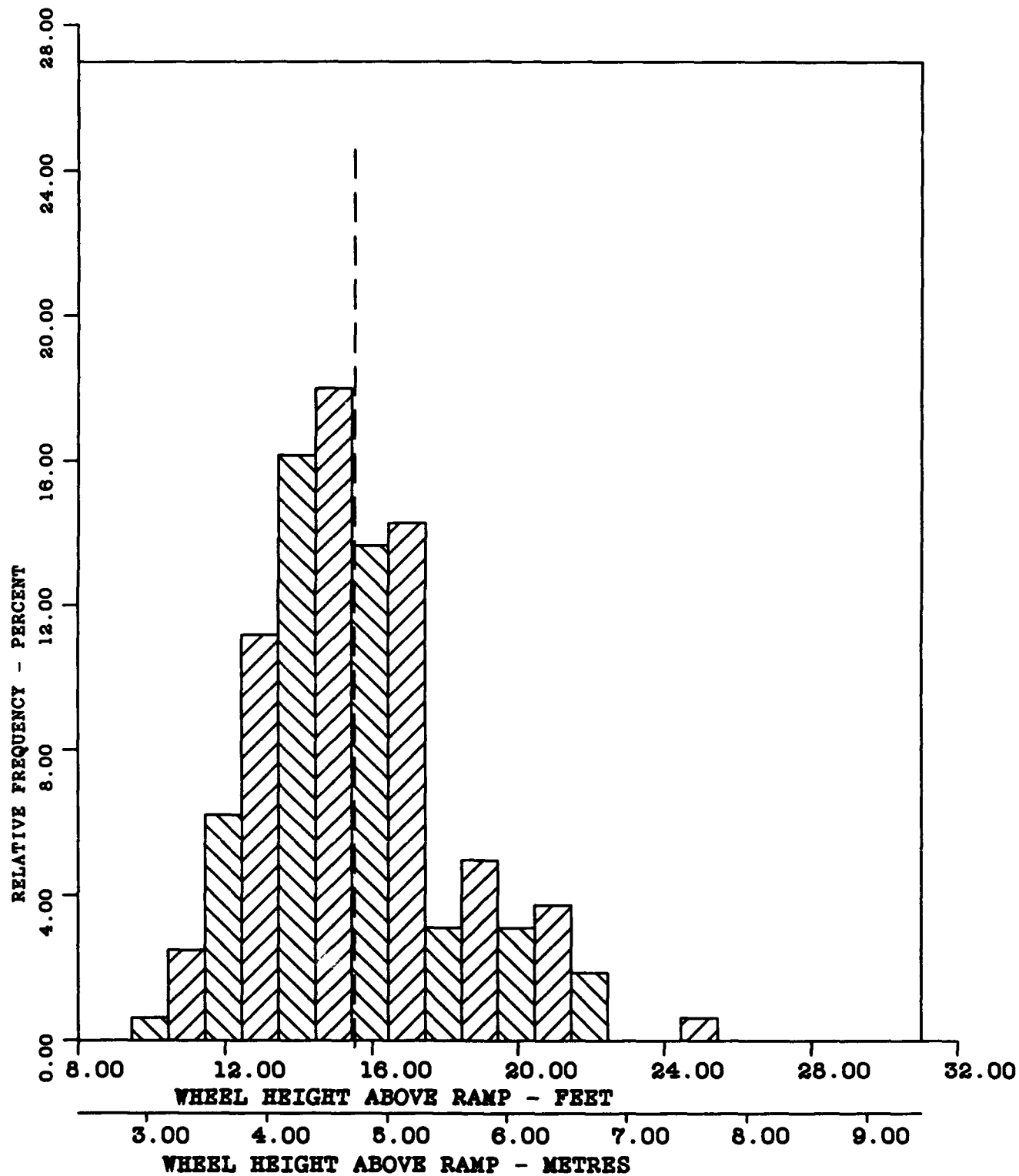


FIGURE N-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-161

 $\bar{X}$ -15.52 FEET (4.73 METRES)

A3-0.71

S- 2.56 FEET (0.78 METRES)

A4-3.57

CURVE FITTED - PEARSON TYPE III

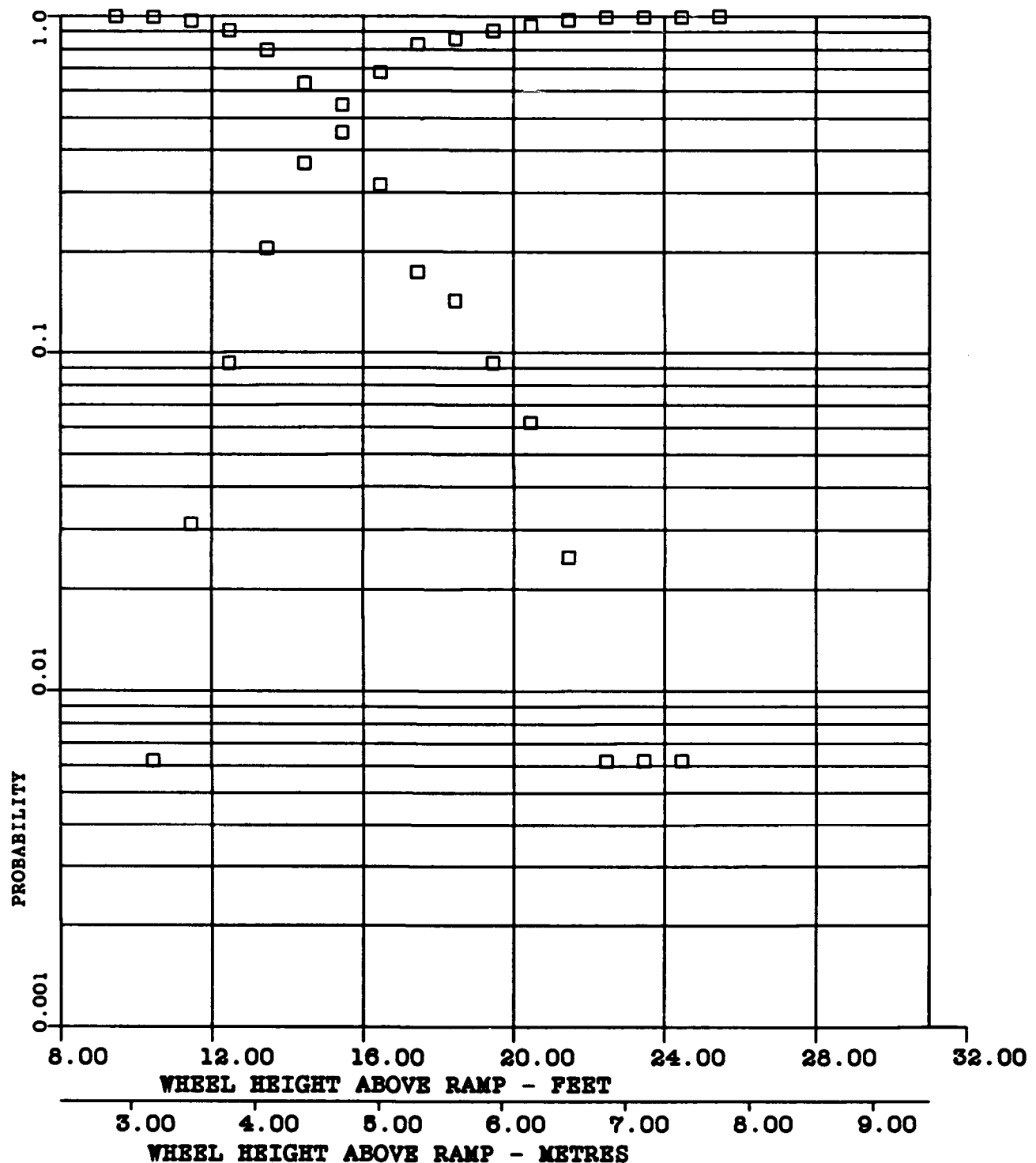


FIGURE PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -8.14 FEET/SEC (2.48 METRES/SEC)

A3-0.47

S- 1.70 FEET/SEC (0.52 METRES/SEC)

A4-3.73

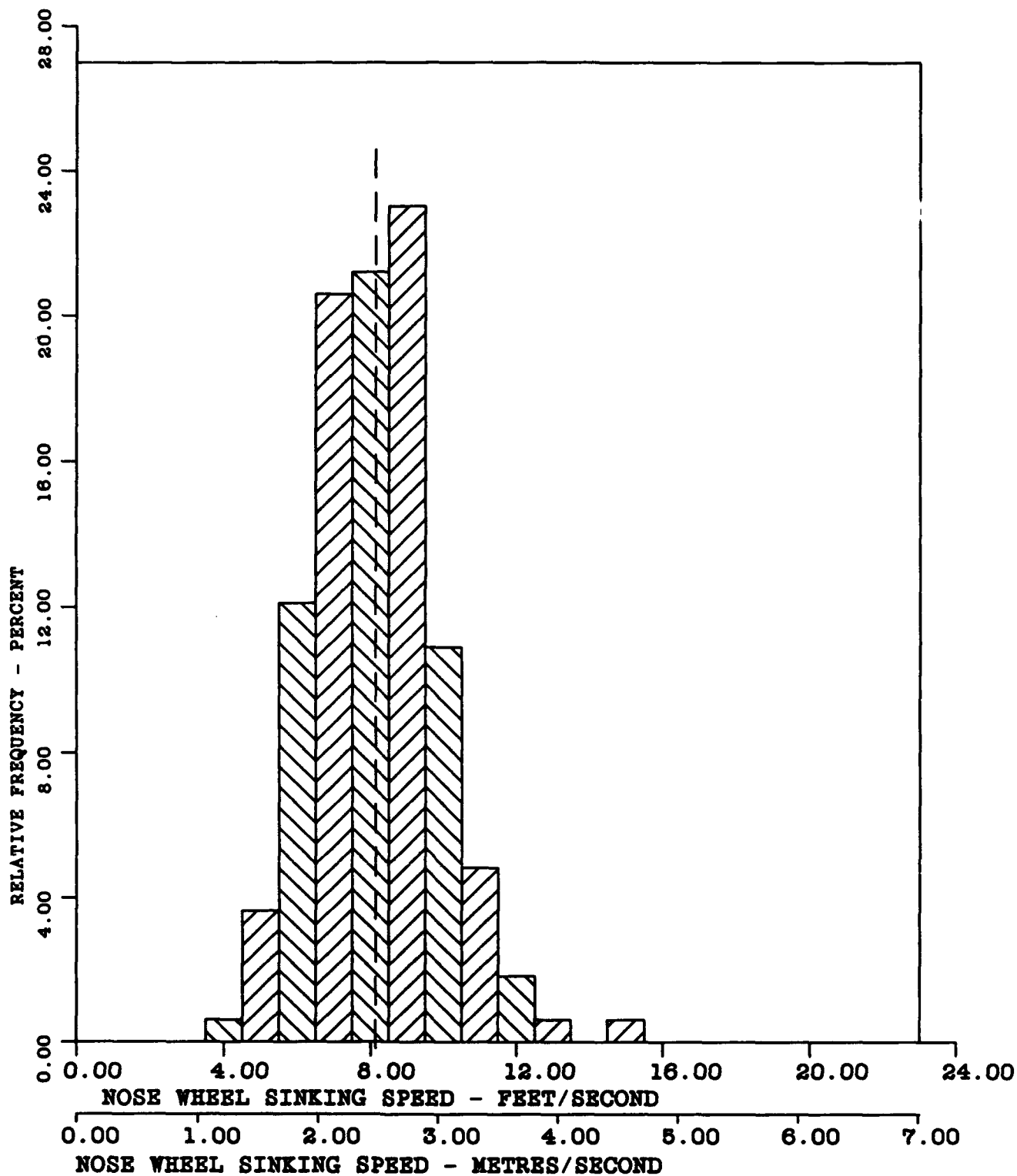


FIGURE N-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ =8.14 FEET/SEC (2.48 METRES/SEC)

A3=0.47

S= 1.70 FEET/SEC (0.52 METRES/SEC)

A4=3.73

CURVE FITTED - PEARSON TYPE III

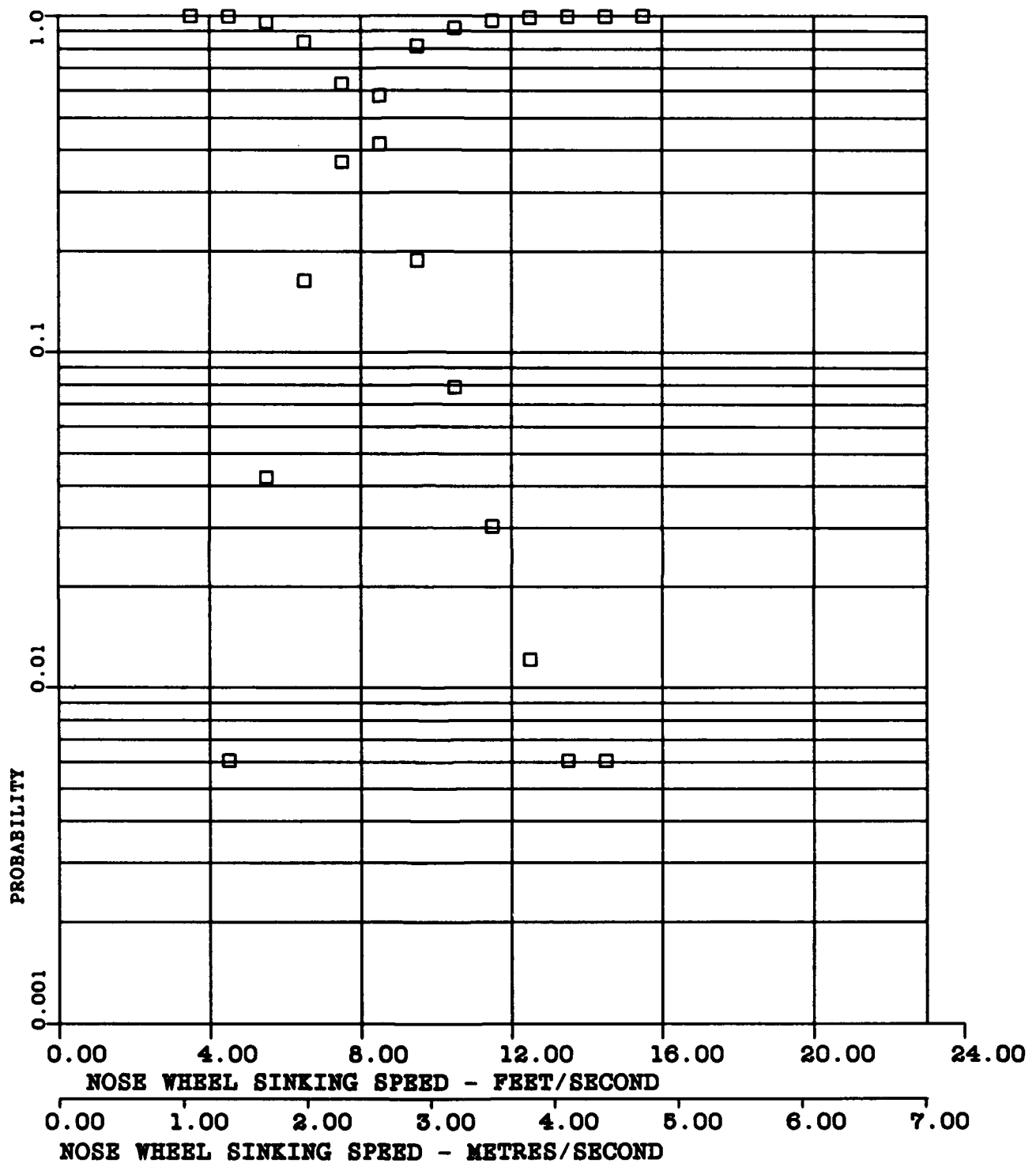


FIGURE N-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -8.49 FEET/SEC (2.59 METRES/SEC)

A3-0.31

S- 2.07 FEET/SEC (0.63 METRES/SEC)

A4-3.58

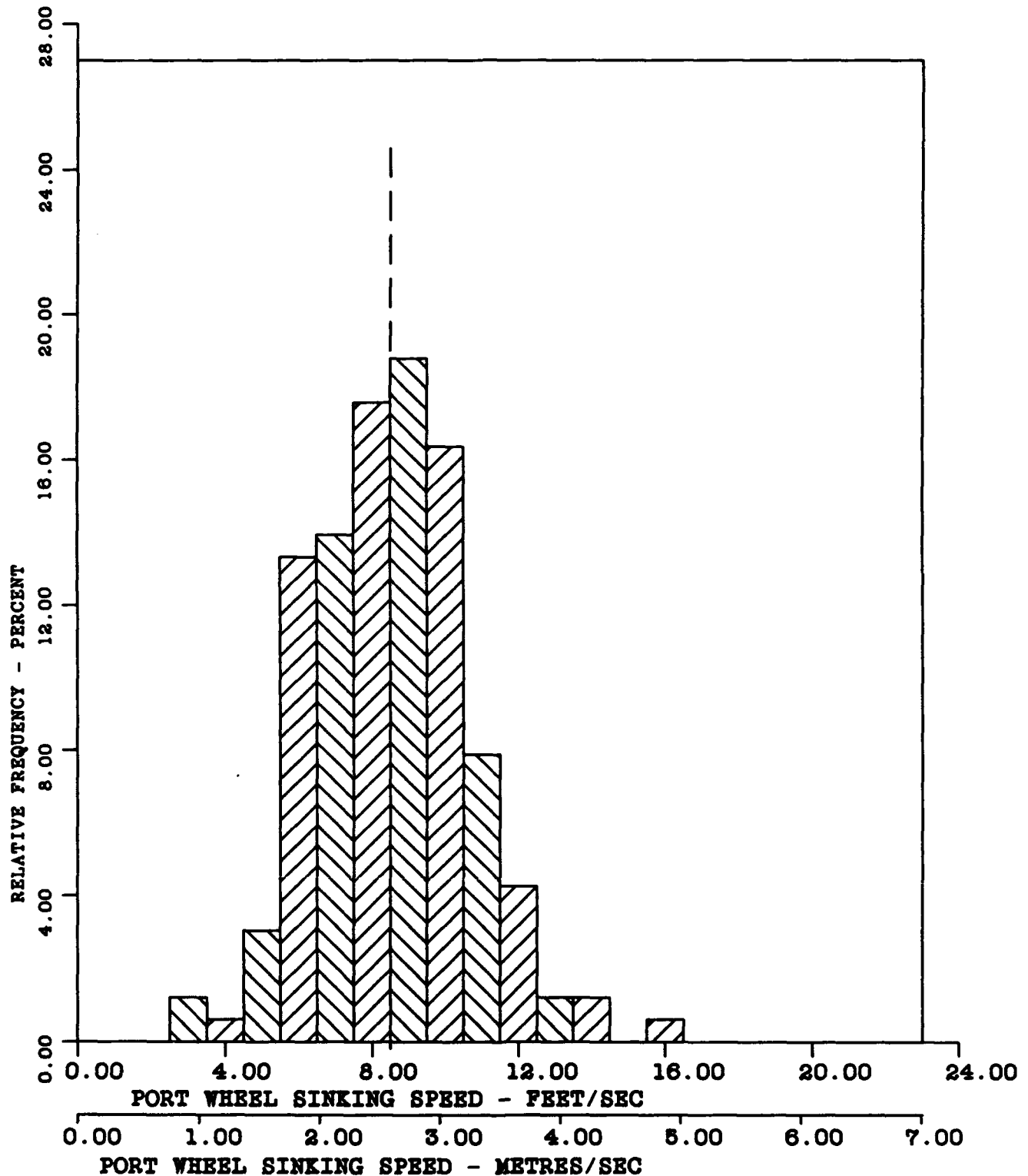


FIGURE N-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -8.49 FEET/SEC (2.59 METRES/SEC)

A3-0.31

S- 2.07 FEET/SEC (0.63 METRES/SEC)

A4-3.58

CURVE FITTED - NORMAL

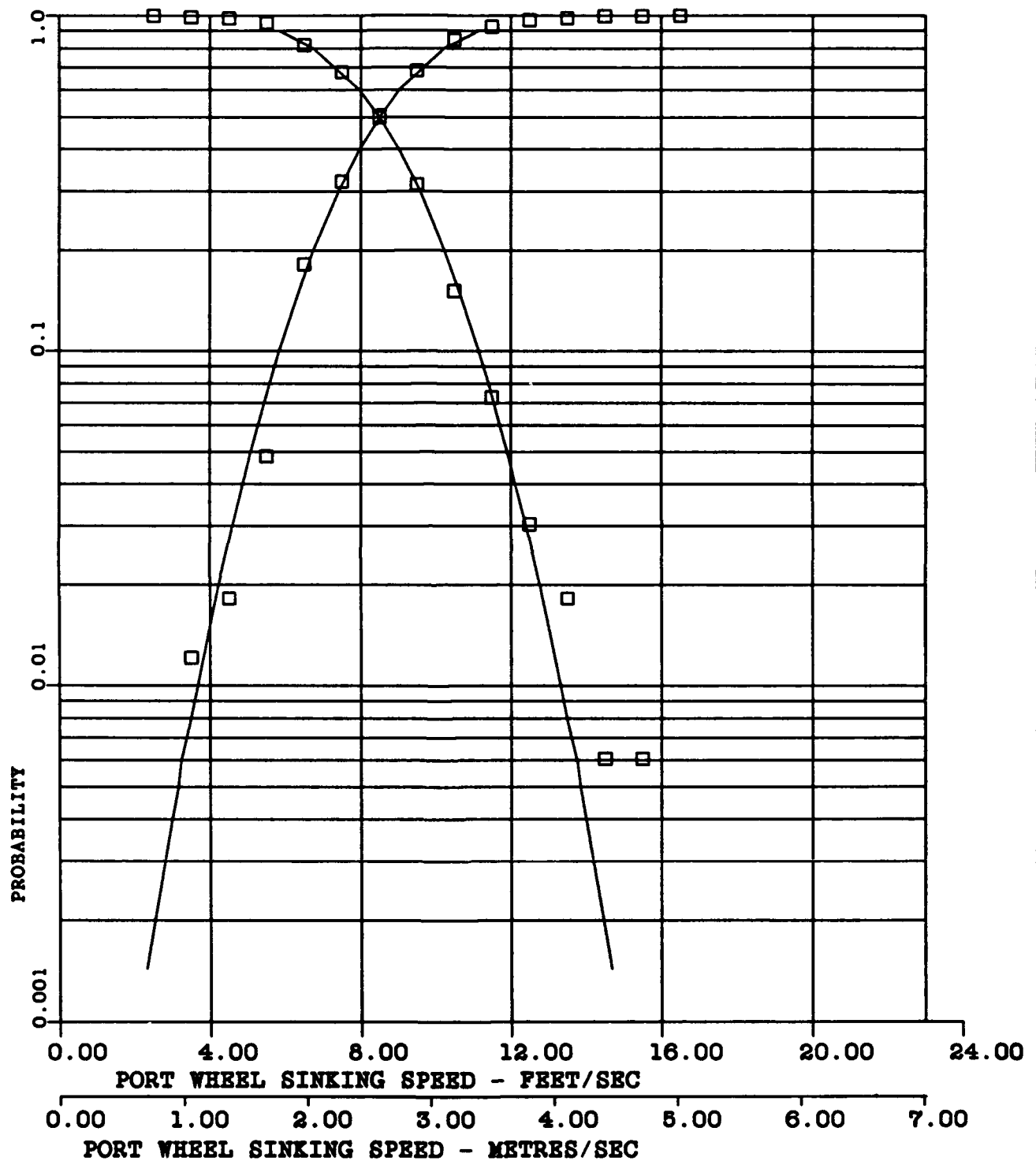


FIGURE N-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -8.19 FEET/SEC (2.50 METRES/SEC)

A3-0.48

S- 2.00 FEET/SEC (0.61 METRES/SEC)

A4-3.89

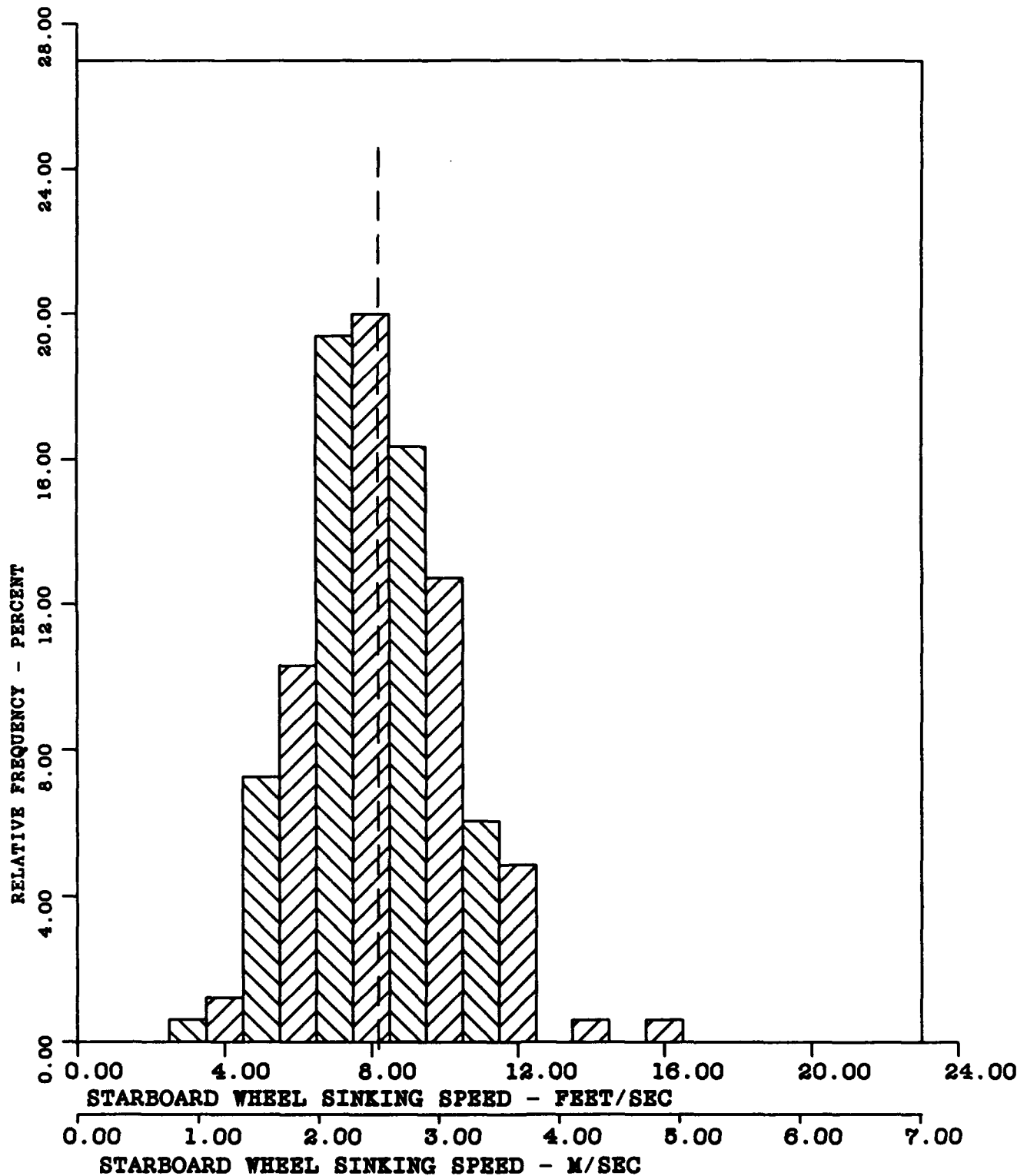


FIGURE N-11 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -8.19 FEET/SEC (2.50 METRES/SEC)

A3-0.48

S- 2.00 FEET/SEC (0.61 METRES/SEC)

A4-3.89

CURVE FITTED - PEARSON TYPE III

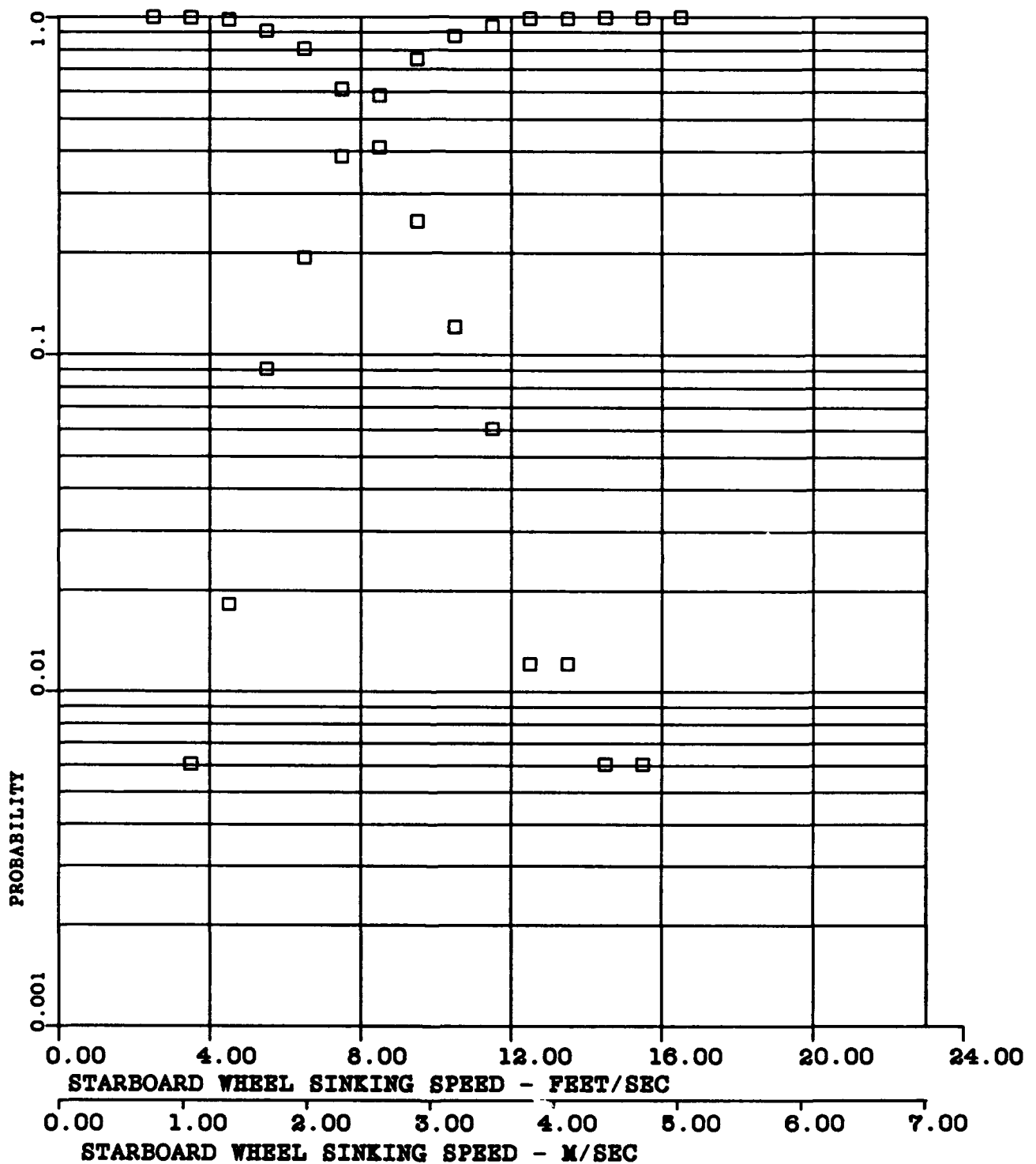


FIGURE N-12 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -8.39 FEET/SEC (2.56 METRES/SEC)

A3-0.47

S- 1.96 FEET/SEC (0.60 METRES/SEC)

A4-4.27

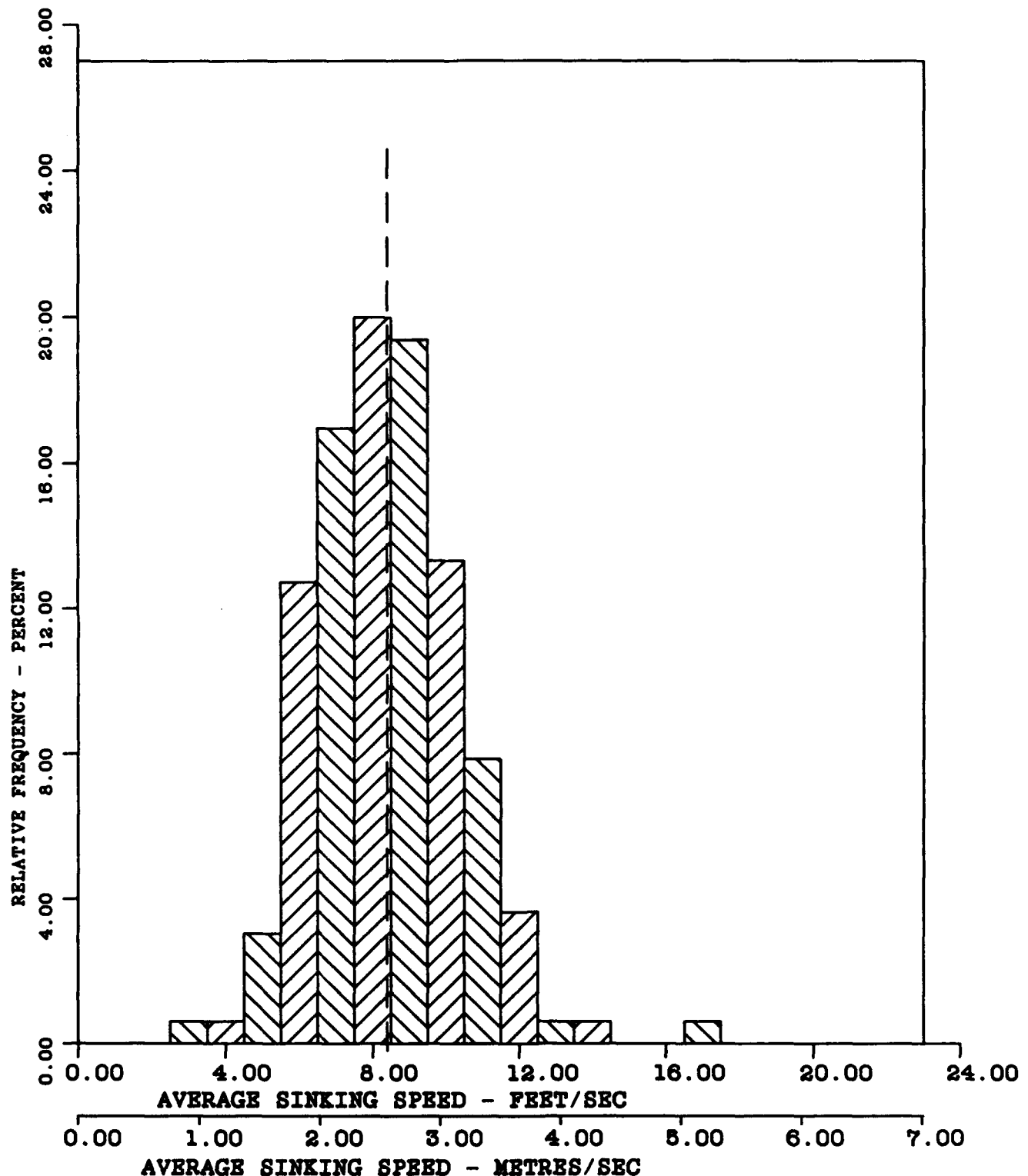


FIGURE N-13 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -8.39 FEET/SEC (2.56 METRES/SEC)

A3-0.47

S- 1.96 FEET/SEC (0.60 METRES/SEC)

A4-4.27

CURVE FITTED - PEARSON TYPE III

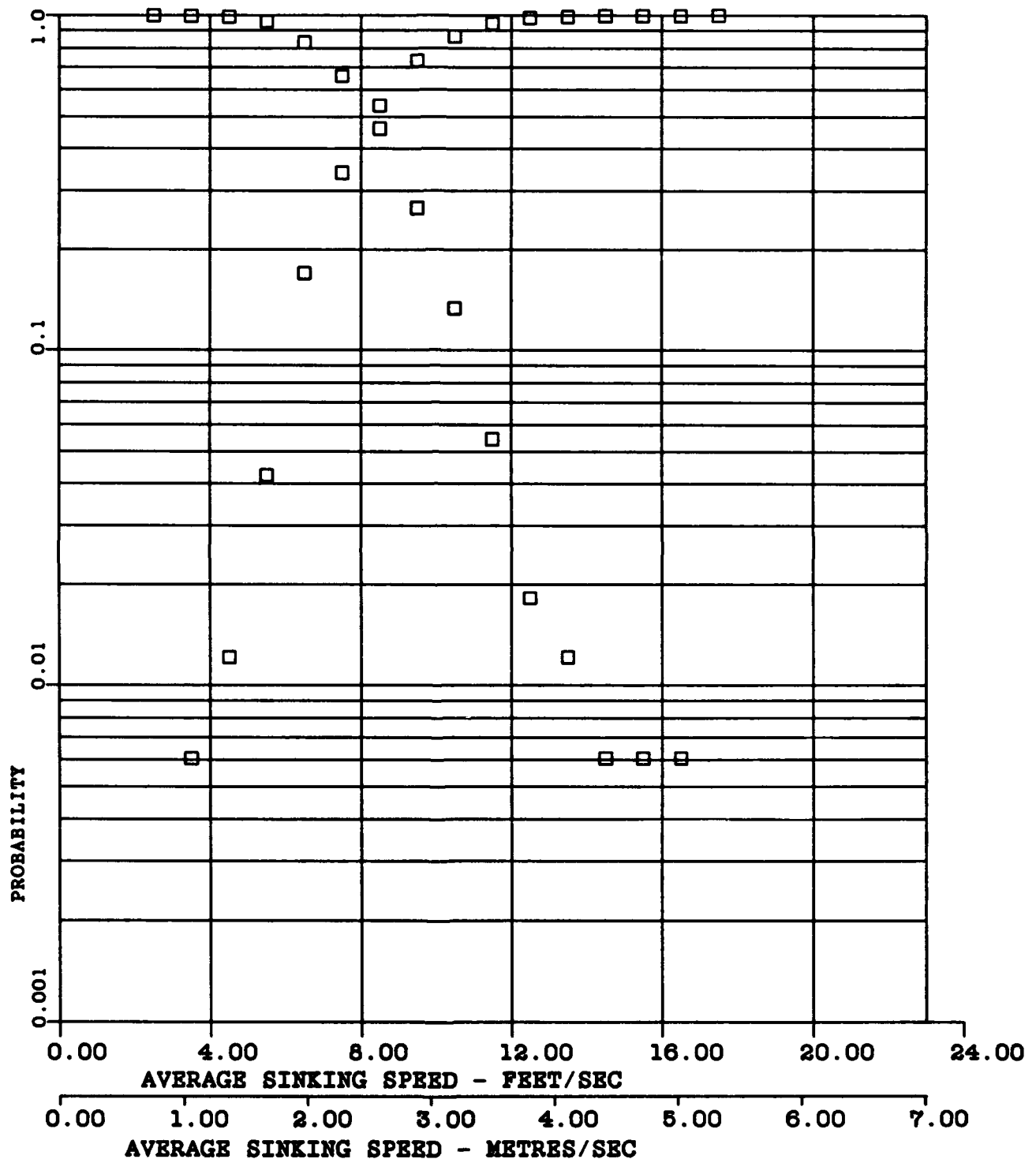


FIGURE N-14 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-13

 $\bar{X}$ -6.94 FEET/SEC (2.12 METRES/SEC)

A3-0.30

S- 1.98 FEET/SEC (0.60 METRES/SEC)

A4-2.96

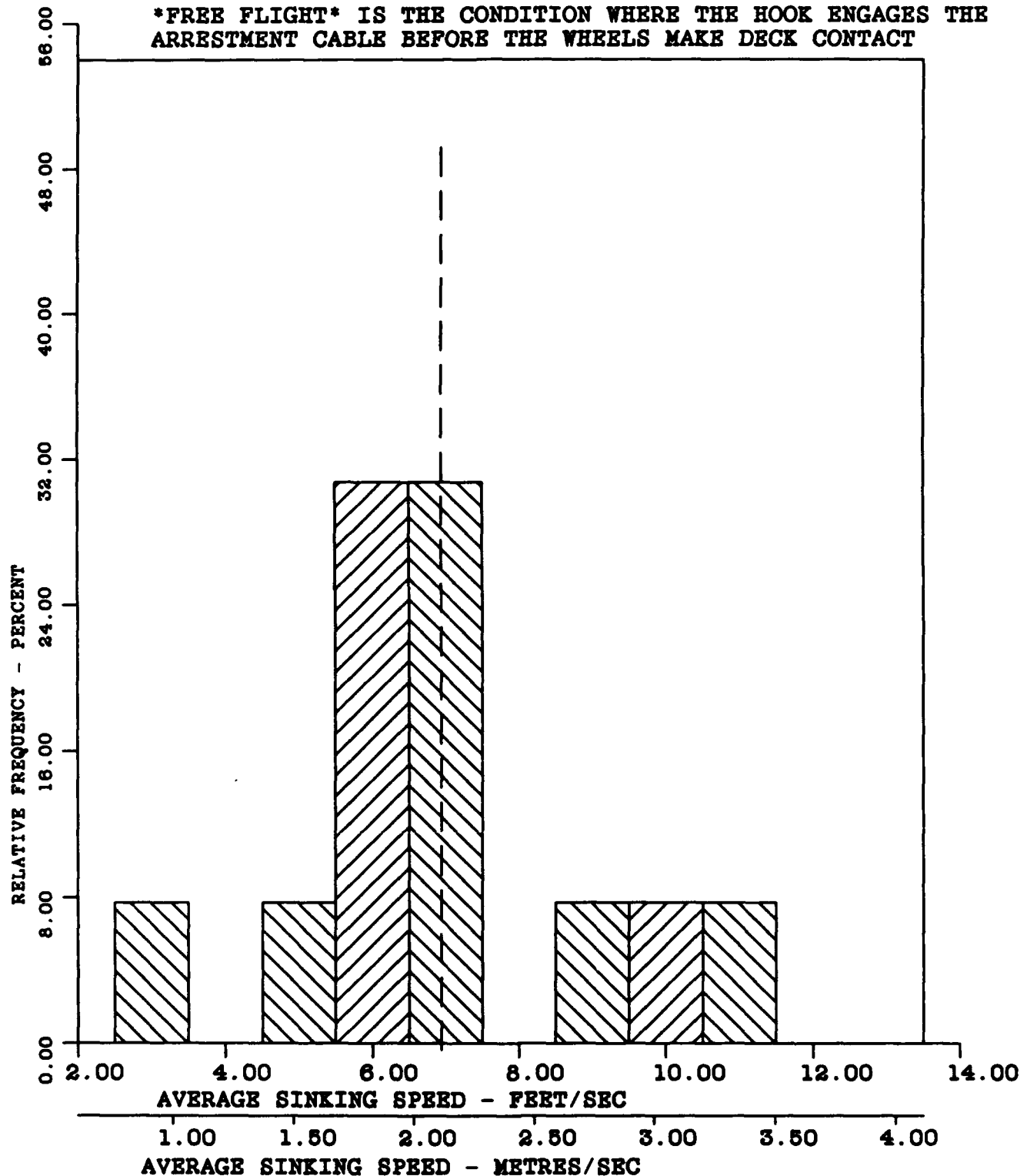


FIGURE N-15 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-13

 $\bar{X}$ -6.94 FEET/SEC (2.12 METRES/SEC)

A3-0.30

S- 1.98 FEET/SEC (0.60 METRES/SEC)

A4-2.96

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

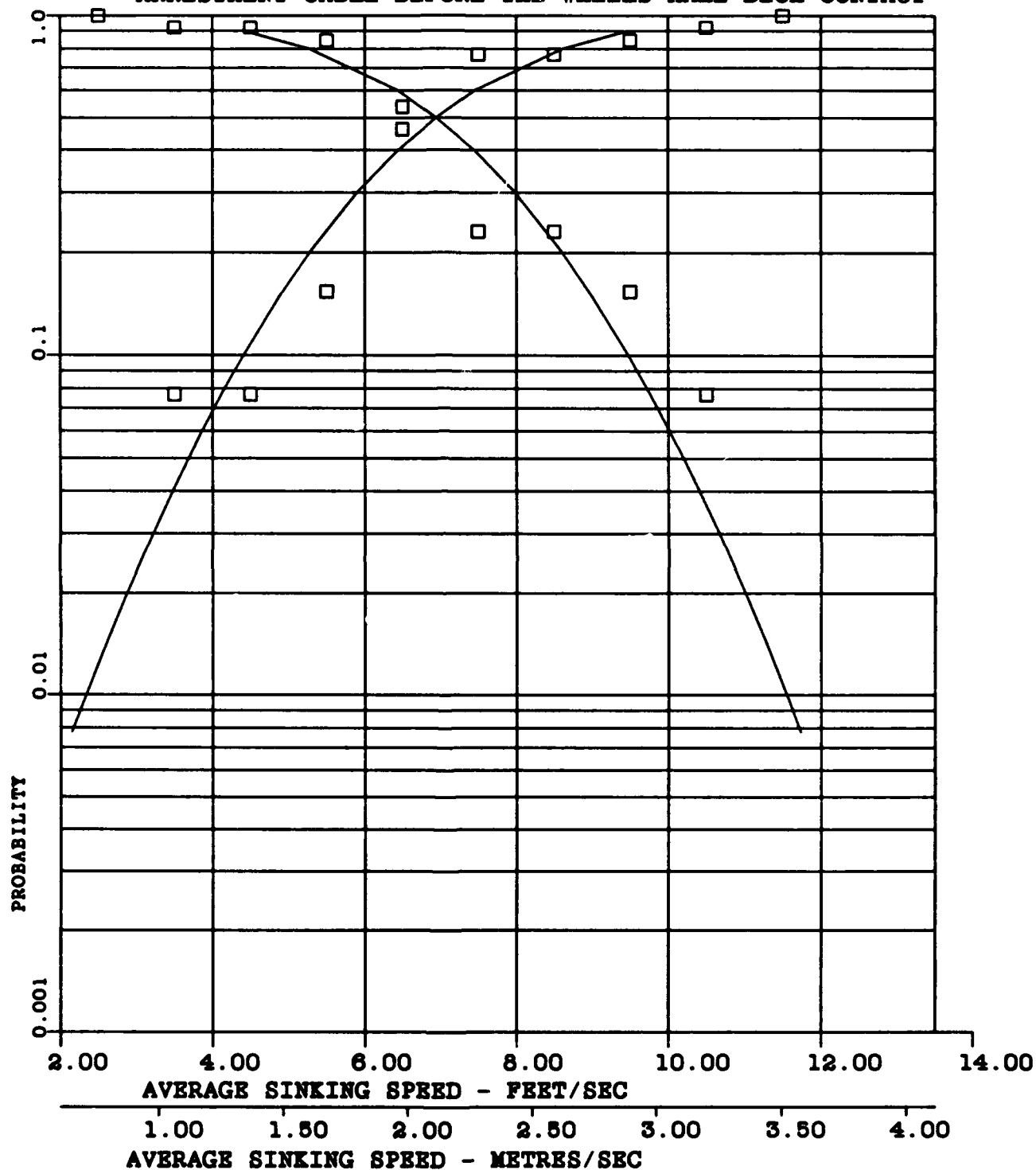


FIGURE N-16 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -1.03

S- 0.09

A3-0.32

A4-3.52

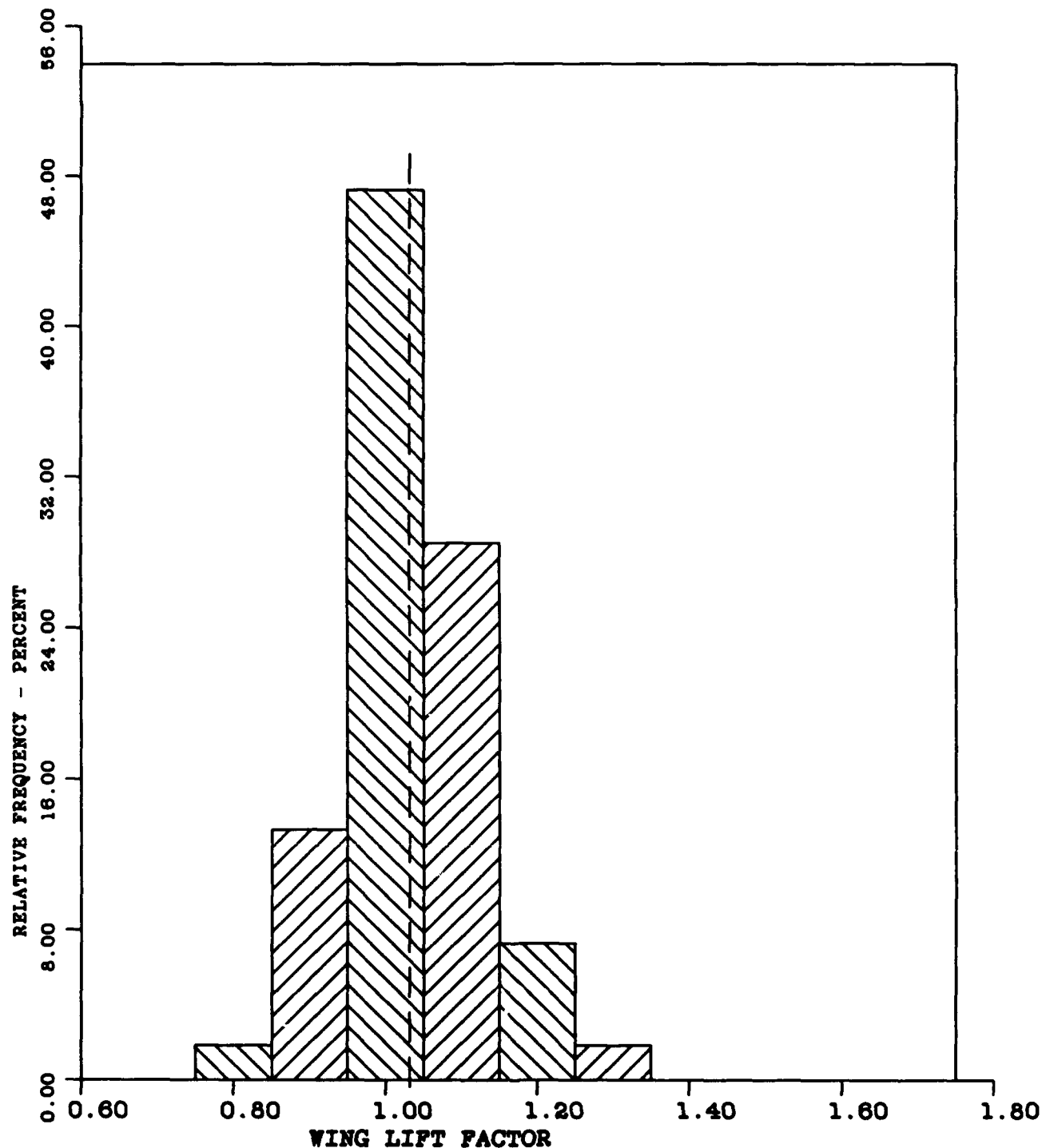


FIGURE N-17 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -1.03

S- 0.09

CURVE FITTED - NORMAL

A3-0.32

A4-3.52

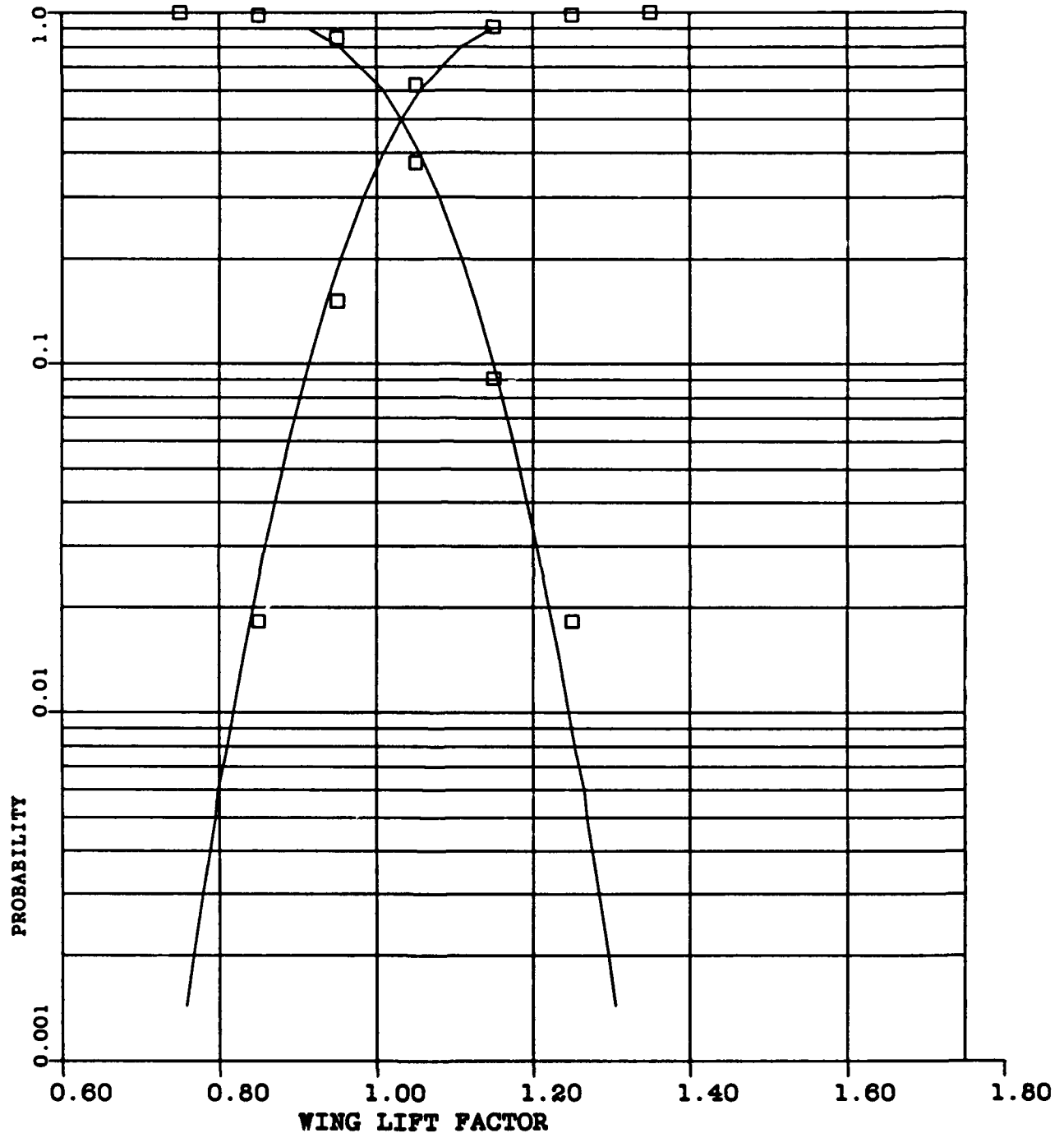


FIGURE N-18 PROBABILITY DISTRIBUTION OF WING LIFT FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-13

 $\bar{X}$ -1.05

S= 0.07

A3--0.13

A4-2.70

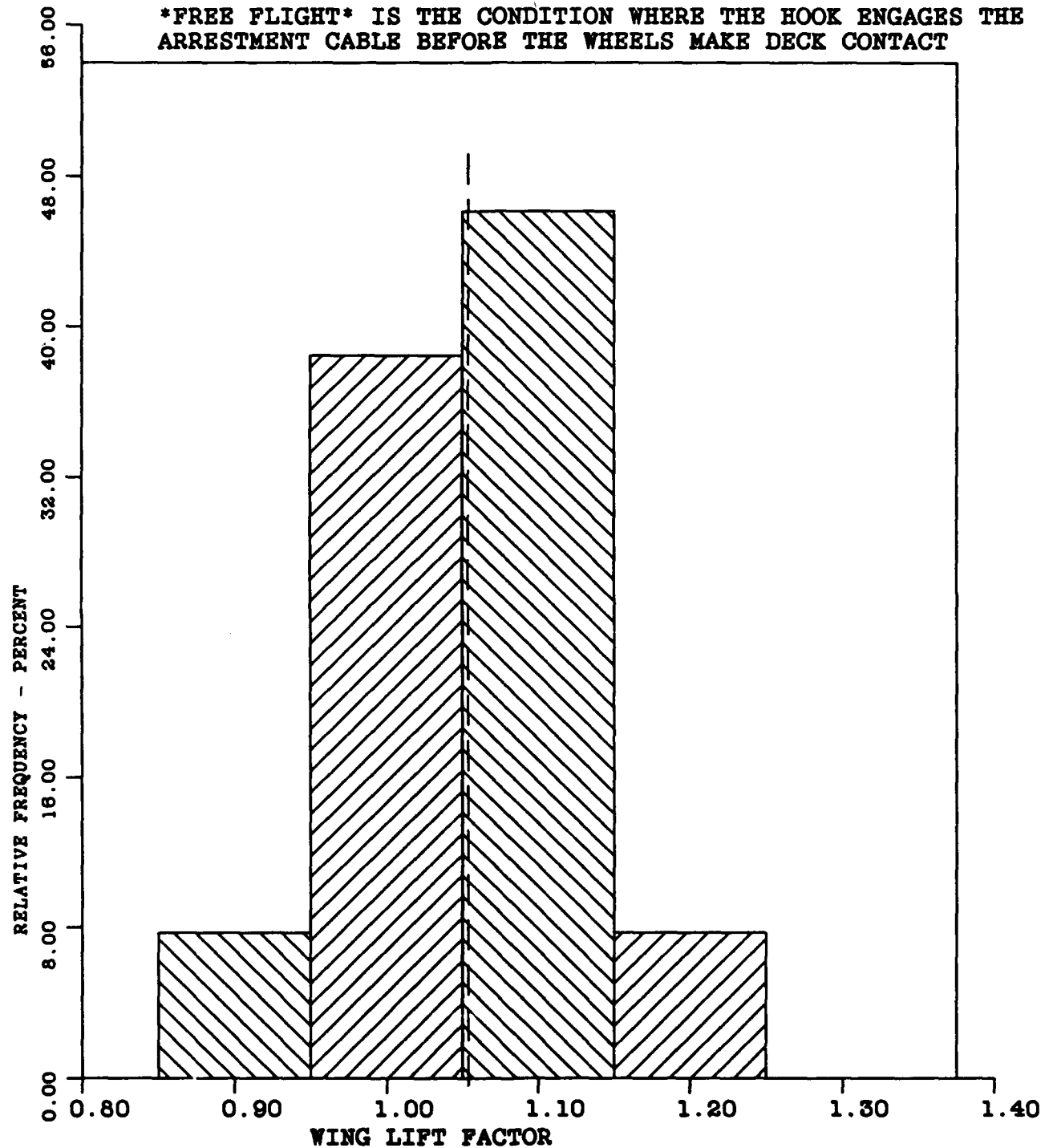


FIGURE N-19 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (0.061 RADIAN)

N-13

 $\bar{X}=1.05$ 

S= 0.07

A3--0.13

A4-2.70

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

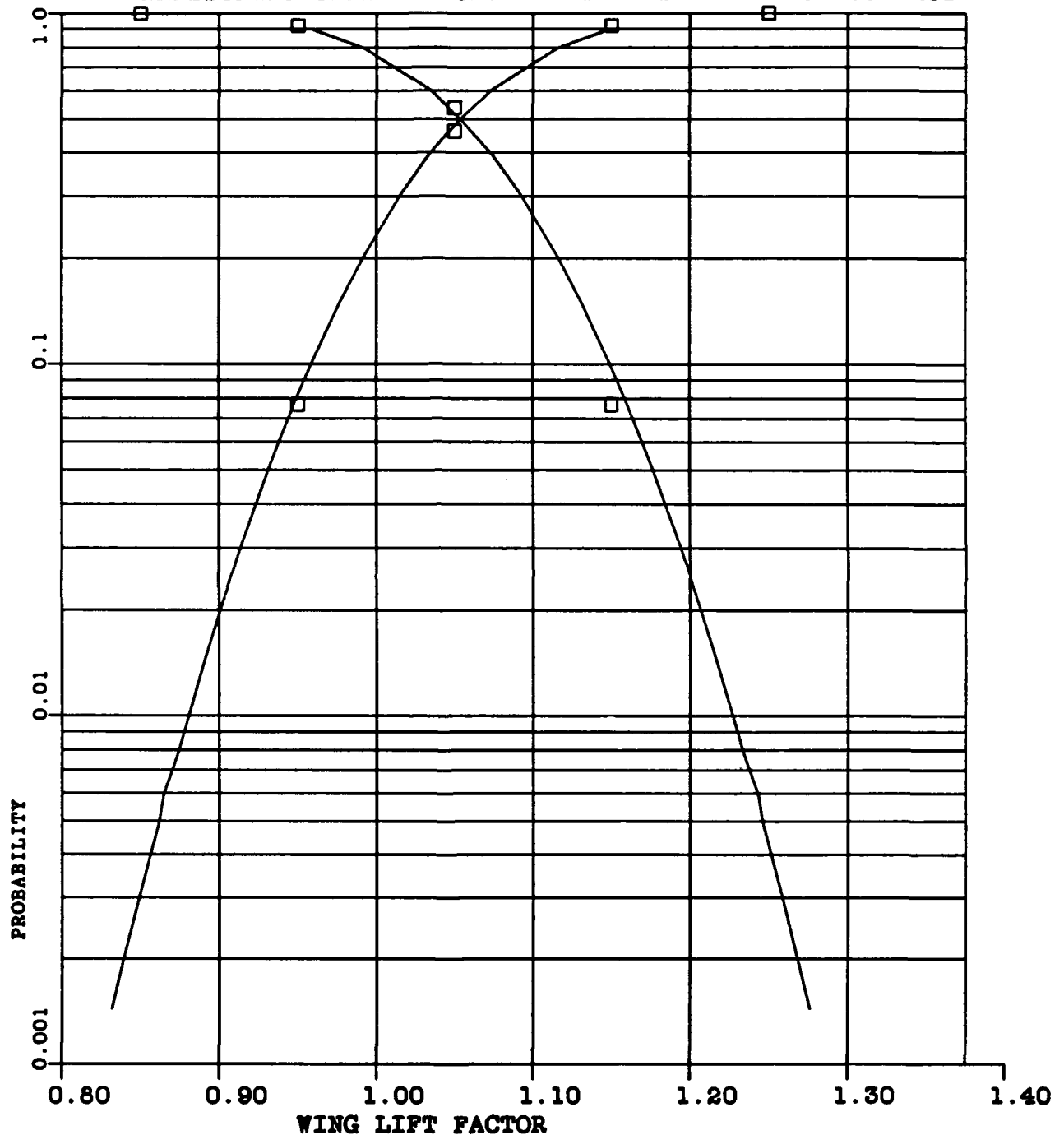


FIGURE N-20 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-161

 $\bar{X}$ -5.46 DEGREES (0.095 RADIANS)

A3-0.55

S- 1.19 DEGREES (0.021 RADIANS)

A4-3.89

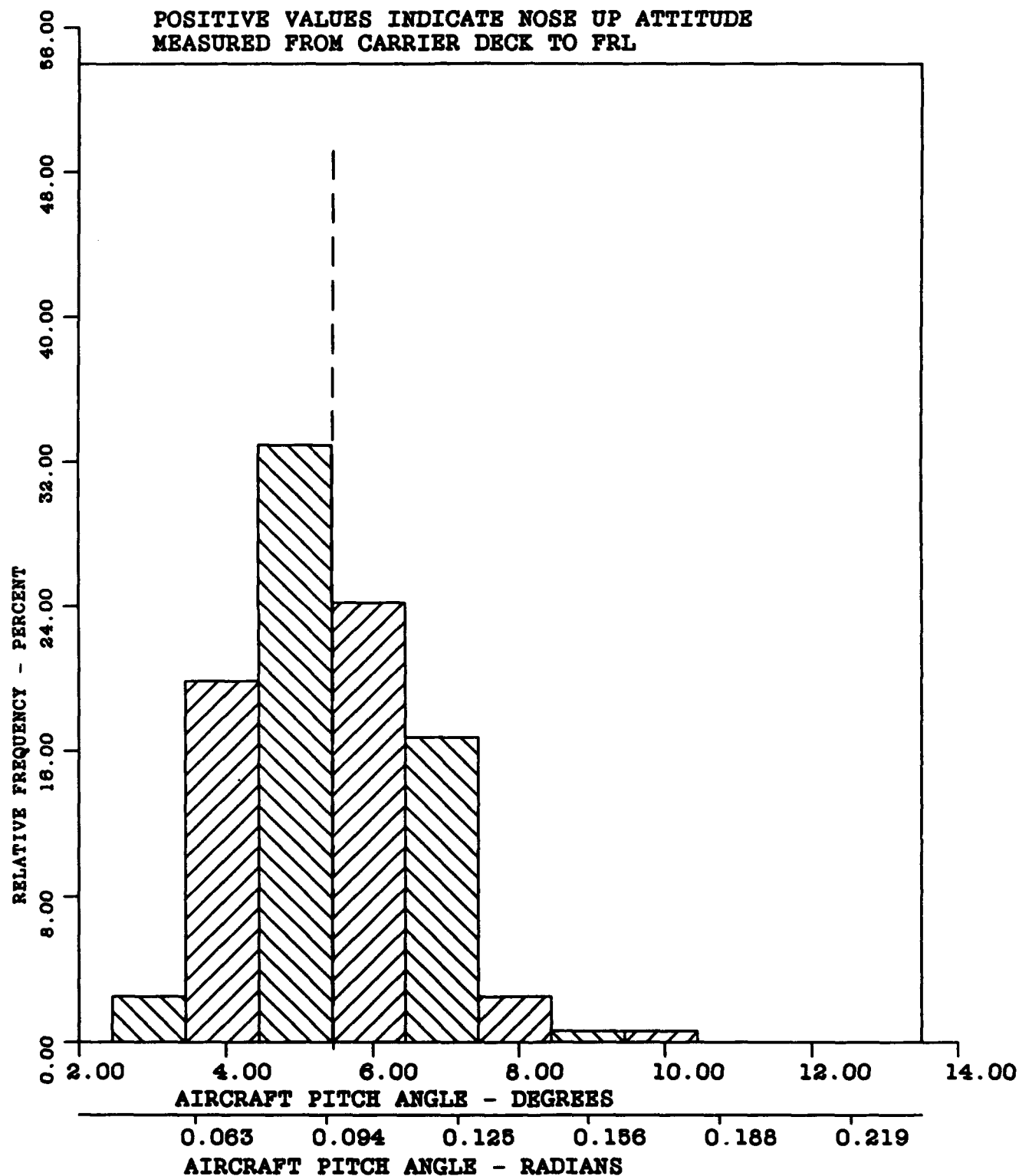


FIGURE N-21 FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-161

 $\bar{X}$ -5.46 DEGREES (0.095 RADIANS)

A3-0.55

S- 1.19 DEGREES (0.021 RADIANS)

A4-3.89

CURVE FITTED - PEARSON TYPE III

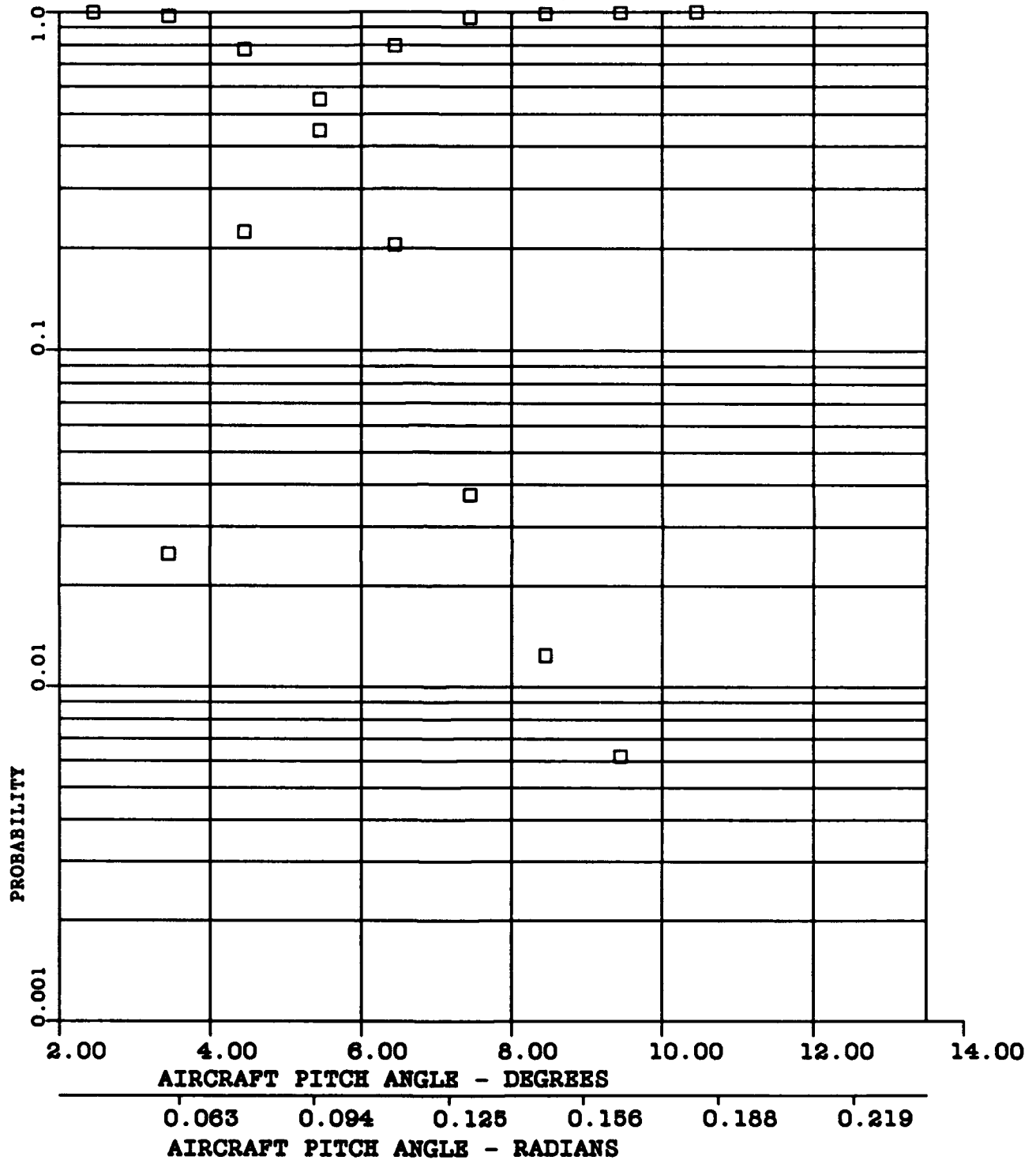
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE N-22 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -4.50 DEGREES (0.079 RADIANS)

A3-0.18

S- 1.20 DEGREES (0.021 RADIANS)

A4-3.57

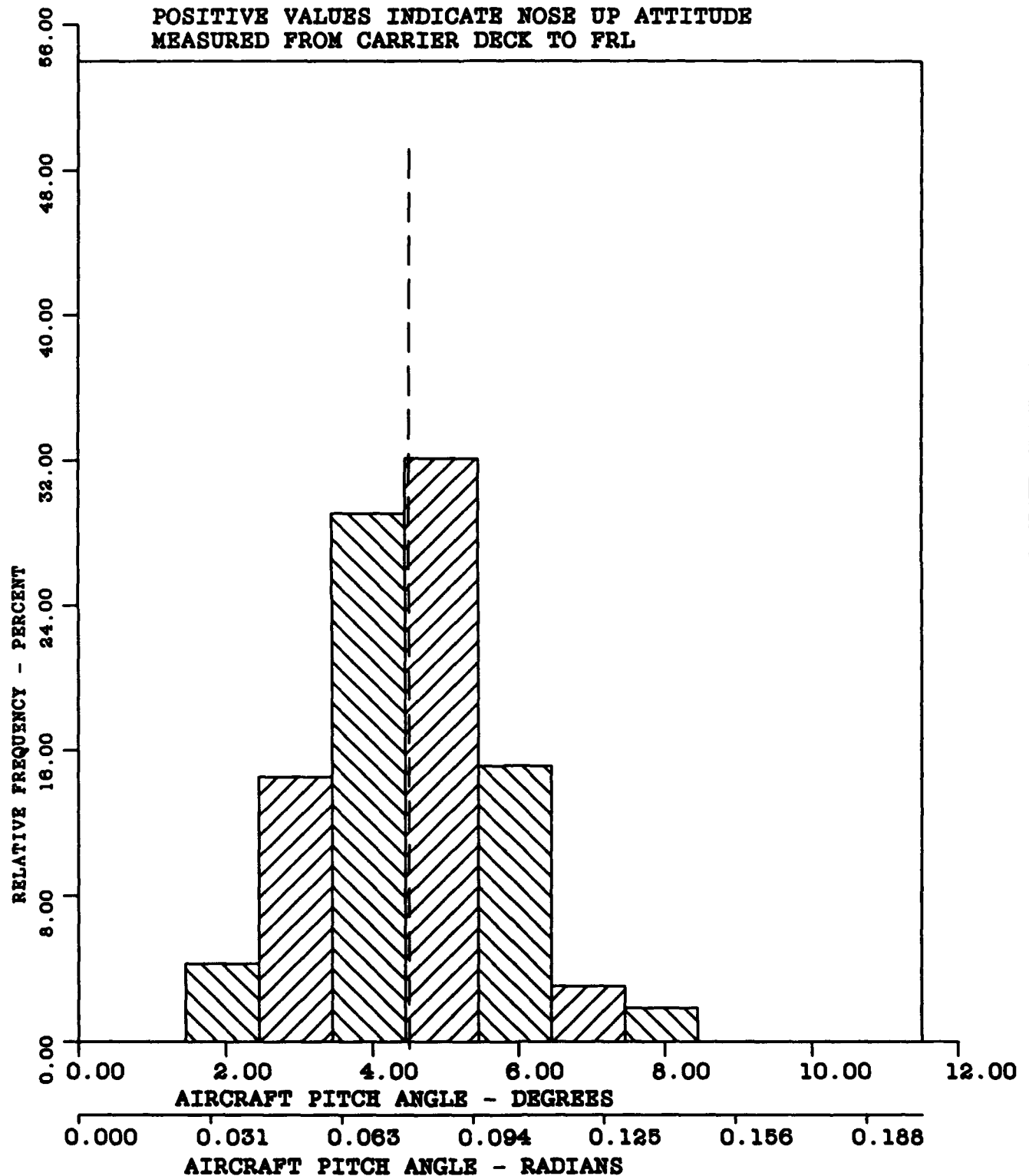


FIGURE N-23 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

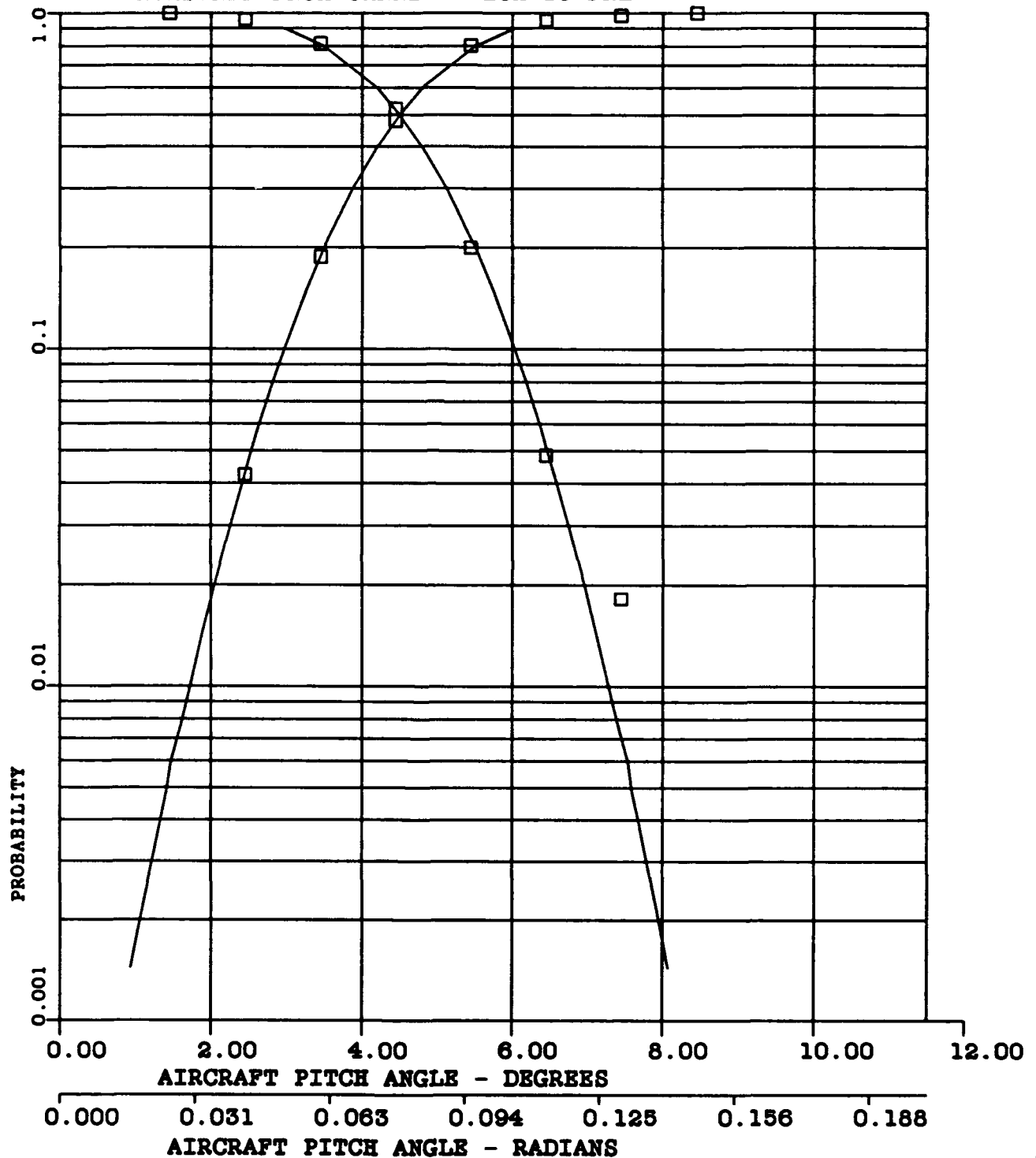
 $\bar{X}$ -4.50 DEGREES (0.079 RADIANS)

A3-0.18

S- 1.20 DEGREES (0.021 RADIANS)

A4-3.57

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-13

 $\bar{X}$ -5.05 DEGREES (0.088 RADIANS)

A3--0.00

S- 0.89 DEGREES (0.016 RADIANS)

A4-2.40

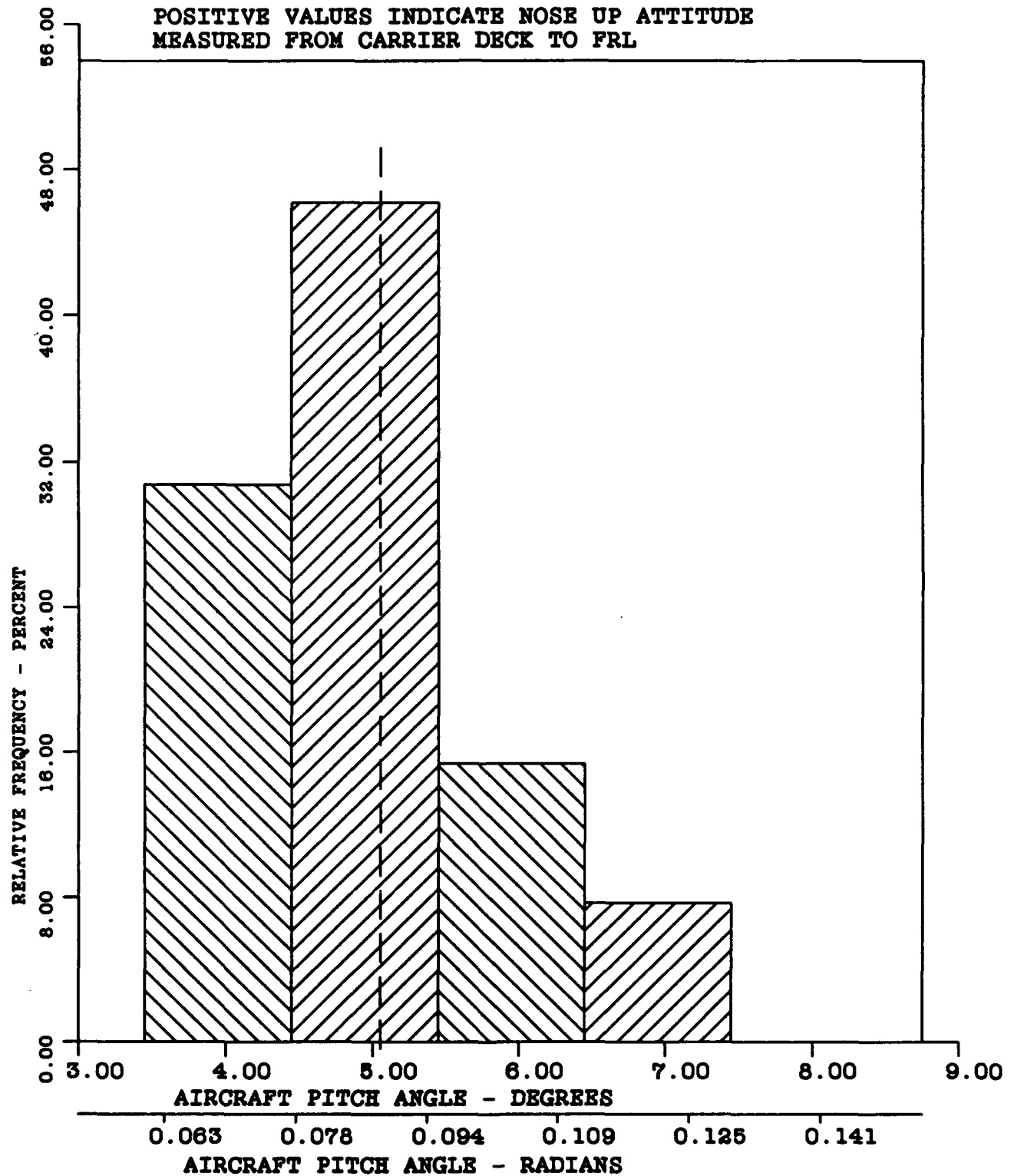


FIGURE N-25 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-13

 $\bar{X}$ -5.05 DEGREES (0.088 RADIANS)

A3--0.00

S- 0.89 DEGREES (0.016 RADIANS)

A4-2.40

CURVE FITTED - NORMAL

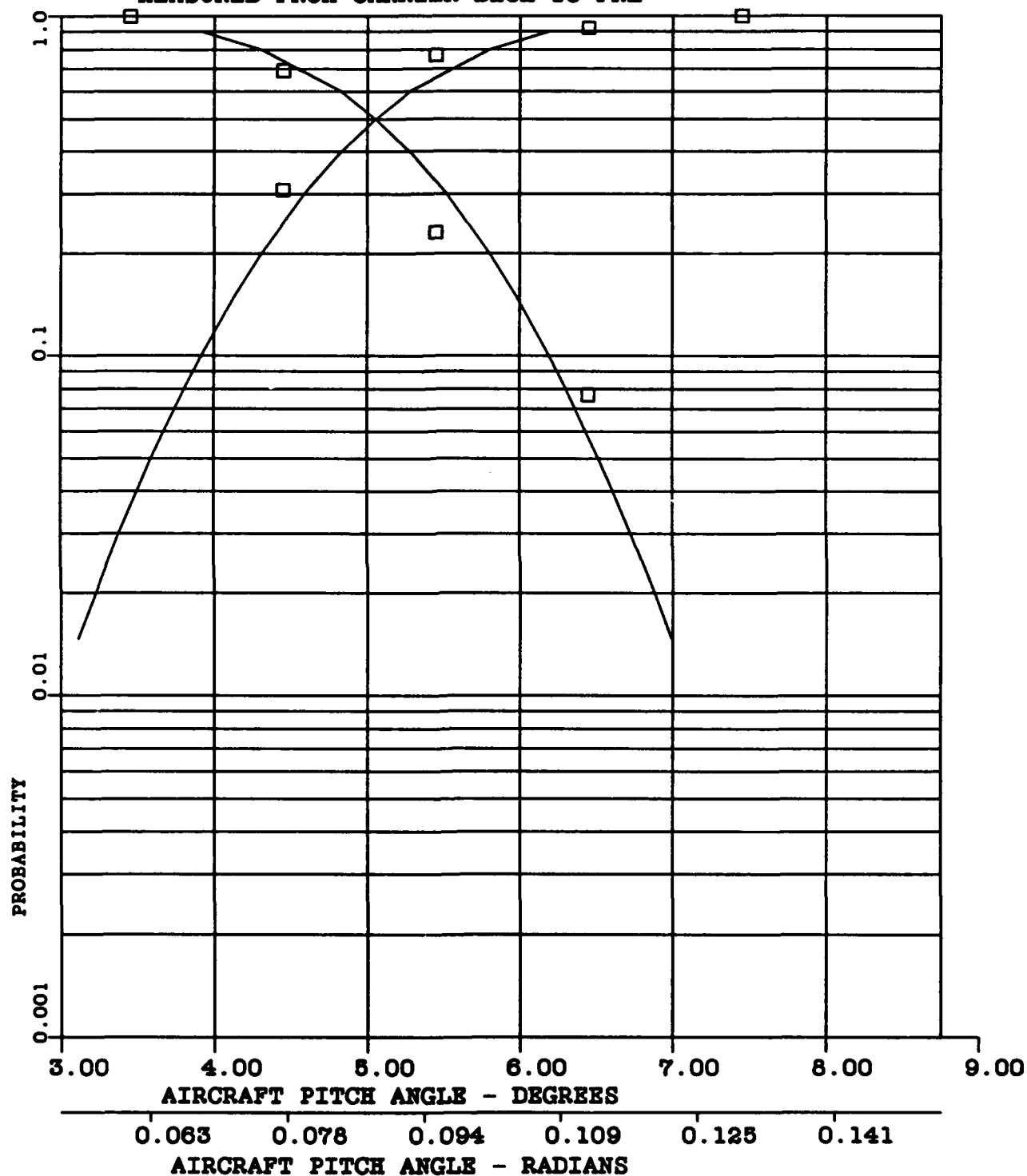
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE N-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-161

 $\bar{X}$ --0.11 DEGREES (-0.002 RADIANS)

A3-0.48

S- 2.08 DEGREES (0.036 RADIANS)

A4-3.65

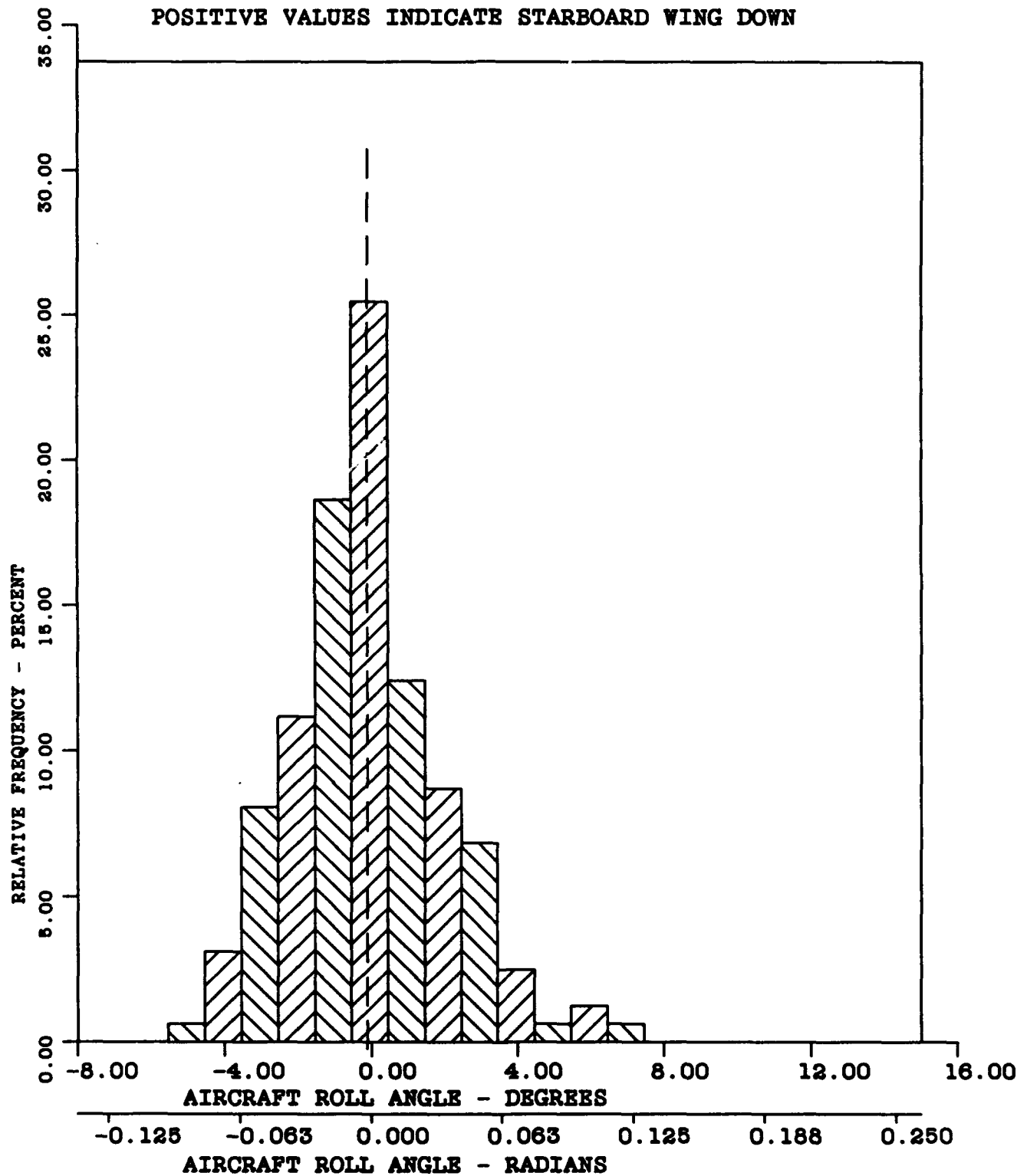


FIGURE N-27 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-161

 $\bar{X}$  = -0.11 DEGREES (-0.002 RADIANS)

A3-0.48

S = 2.08 DEGREES (0.036 RADIANS)

A4-3.65

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

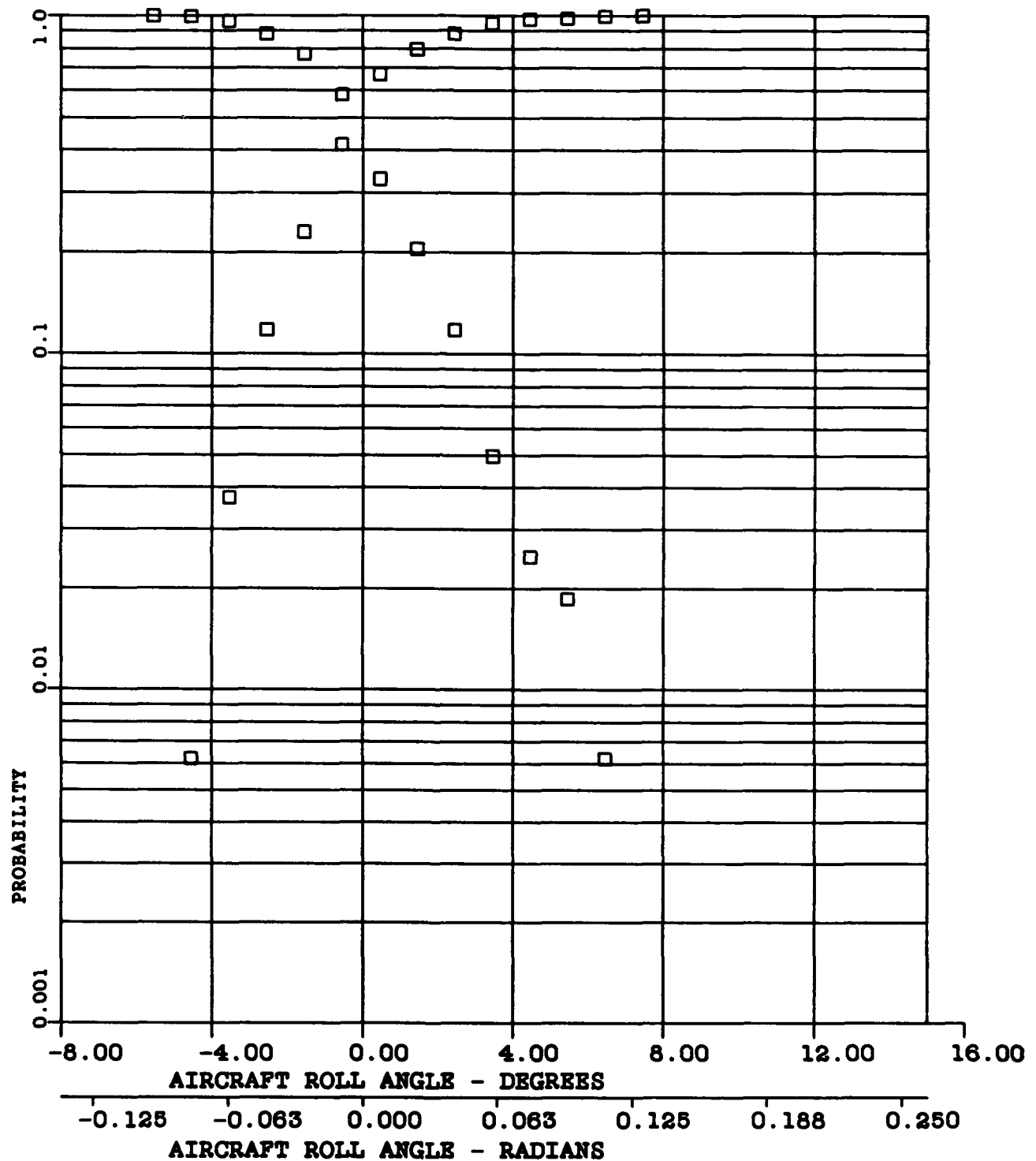


FIGURE N-28 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -0.59 DEGREES (-0.010 RADIANS)

A3-0.57

S- 1.89 DEGREES (0.033 RADIANS)

A4-4.48

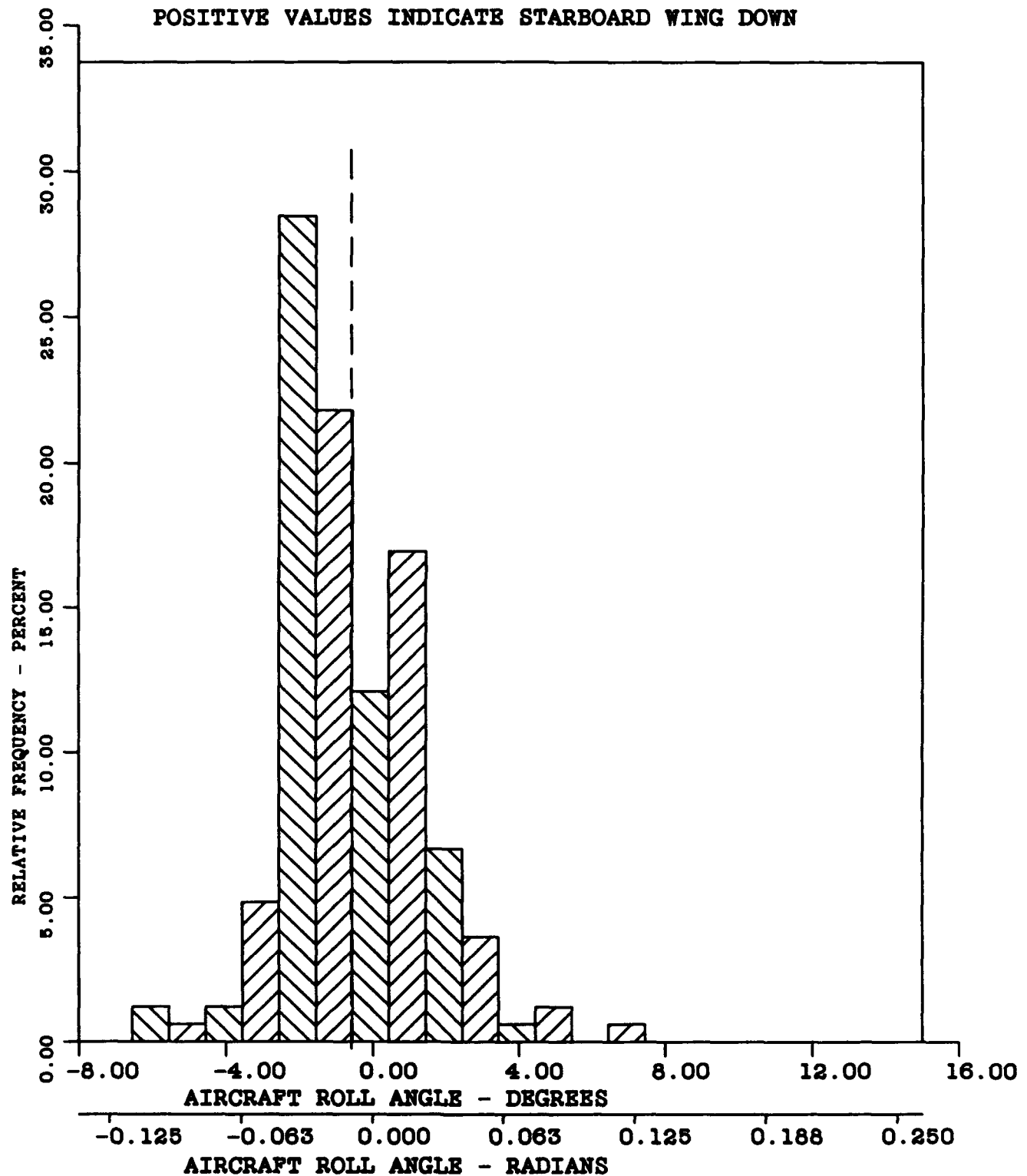


FIGURE FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -0.59 DEGREES (-0.010 RADIANS)

A3-0.57

S- 1.89 DEGREES (0.033 RADIANS)

A4-4.48

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

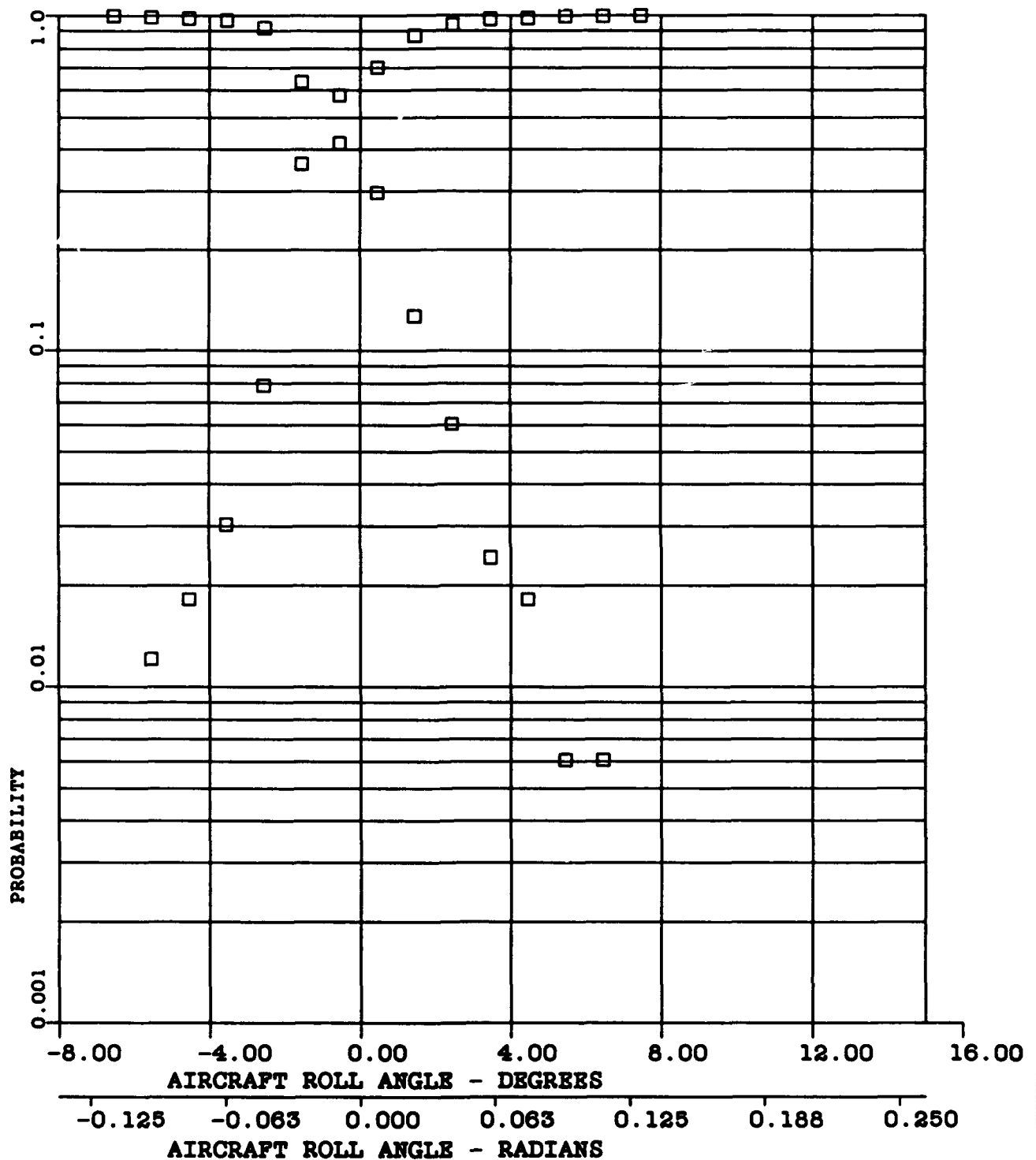


FIGURE N-30 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-13

 $\bar{X}$ --0.48 DEGREES (-0.008 RADIANS)

A3-0.34

S- 1.17 DEGREES (0.020 RADIANS)

A4-2.05

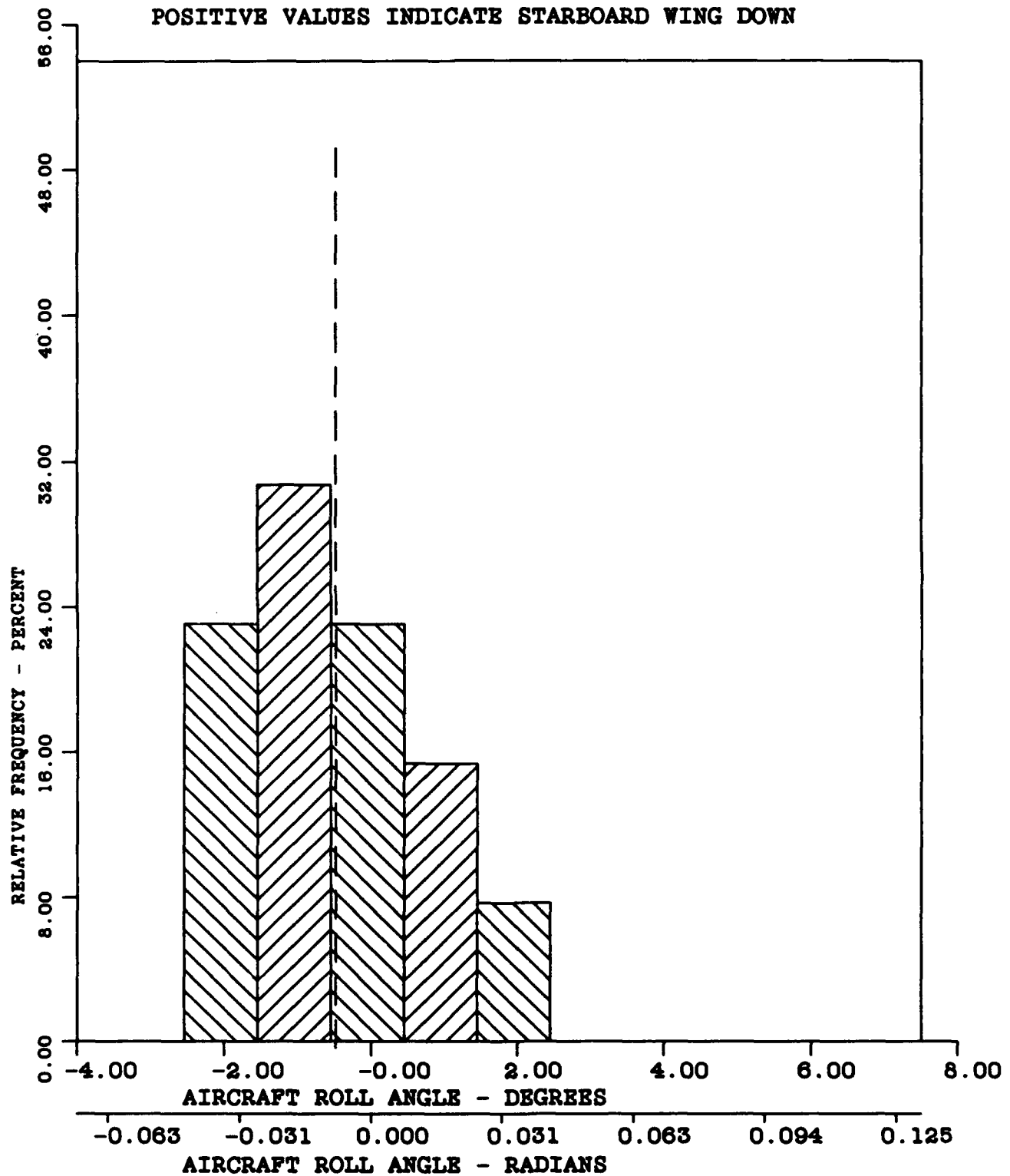


FIGURE N-31 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-13

 $\bar{X}$ -0.48 DEGREES (-0.008 RADIANS)

A3-0.34

S- 1.17 DEGREES (0.020 RADIANS)

A4-2.05

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

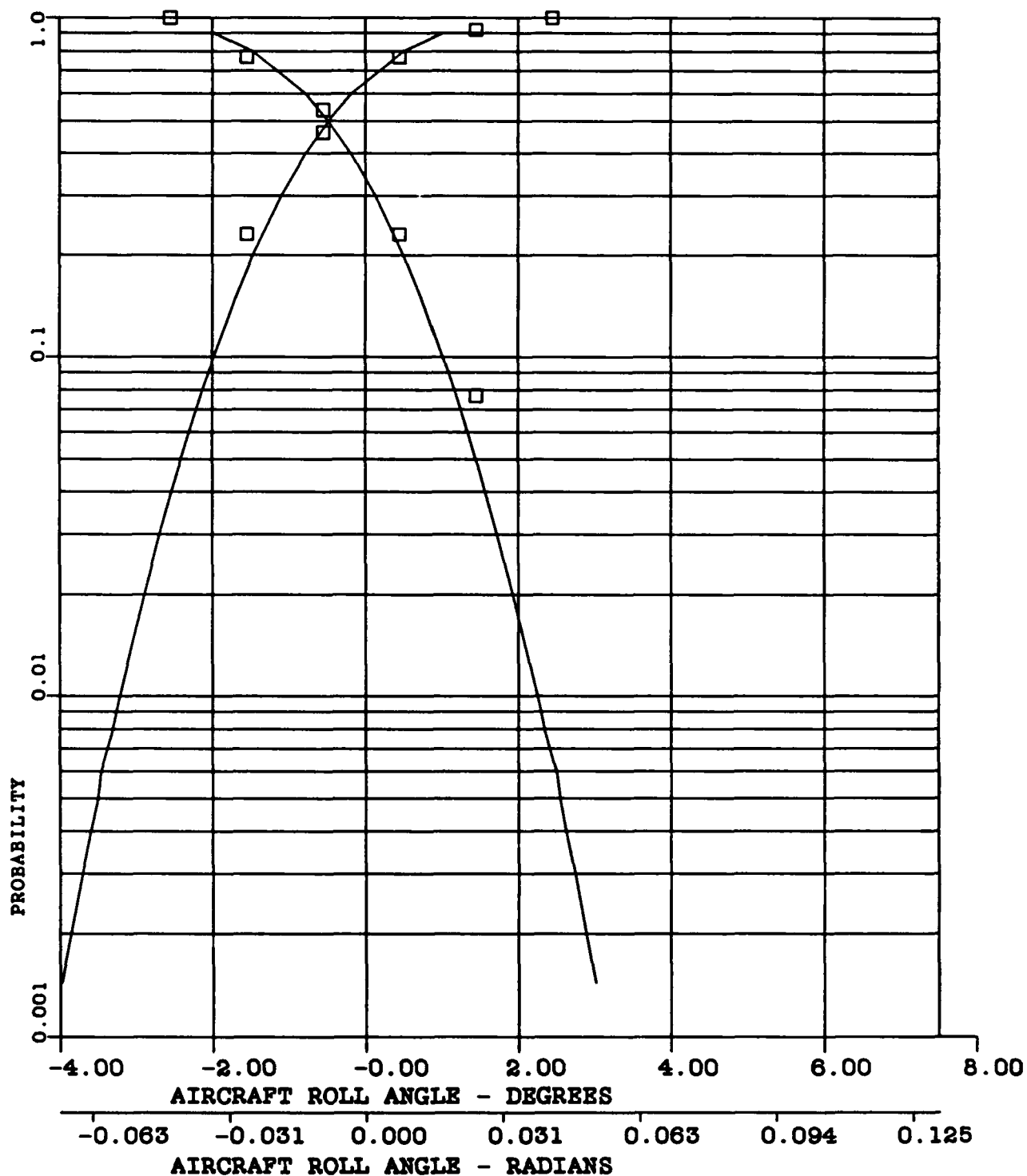


FIGURE N-32 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -248.47 FEET (75.73 METRES)

A3--0.39

S- 32.93 FEET (10.04 METRES)

A4-2.85

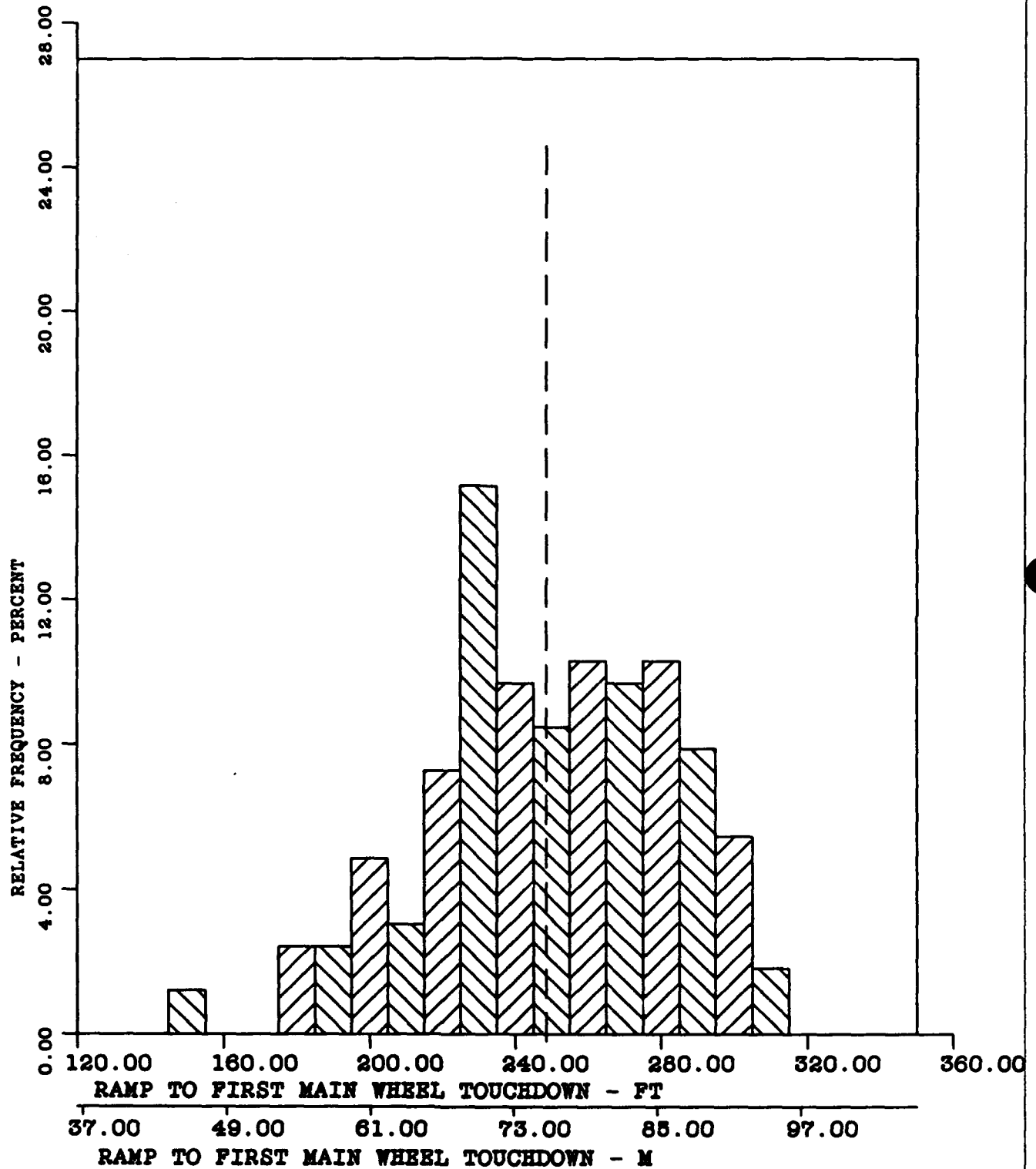


FIGURE N-33 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -248.47 FEET (75.73 METRES)

A3--0.39

S- 32.93 FEET (10.04 METRES)

A4-2.85

CURVE FITTED - PEARSON TYPE III

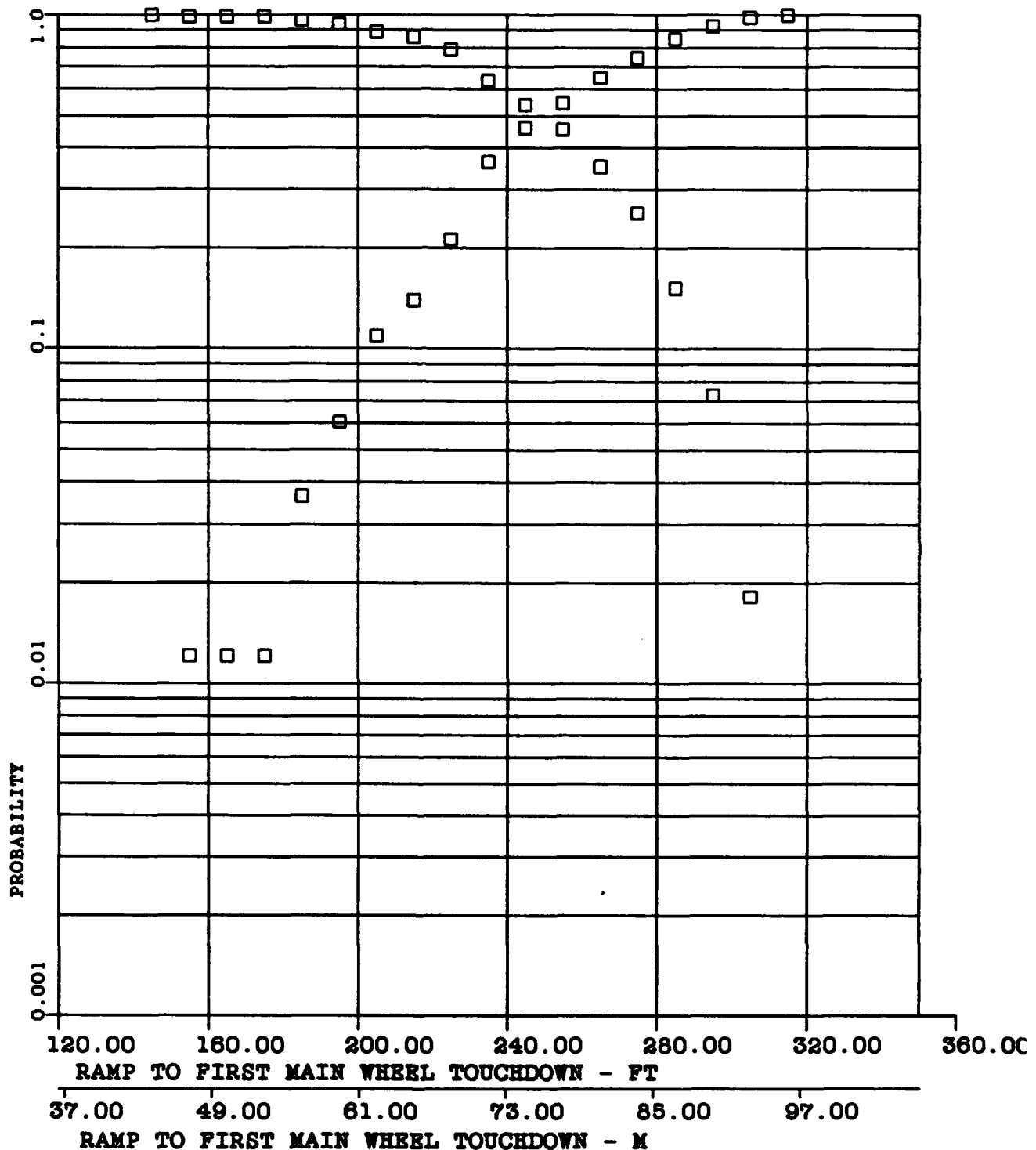


FIGURE N-34 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -10.57 FEET (-3.22 METRES)

A3-0.22

S- 4.52 FEET (1.38 METRES)

A4-2.97

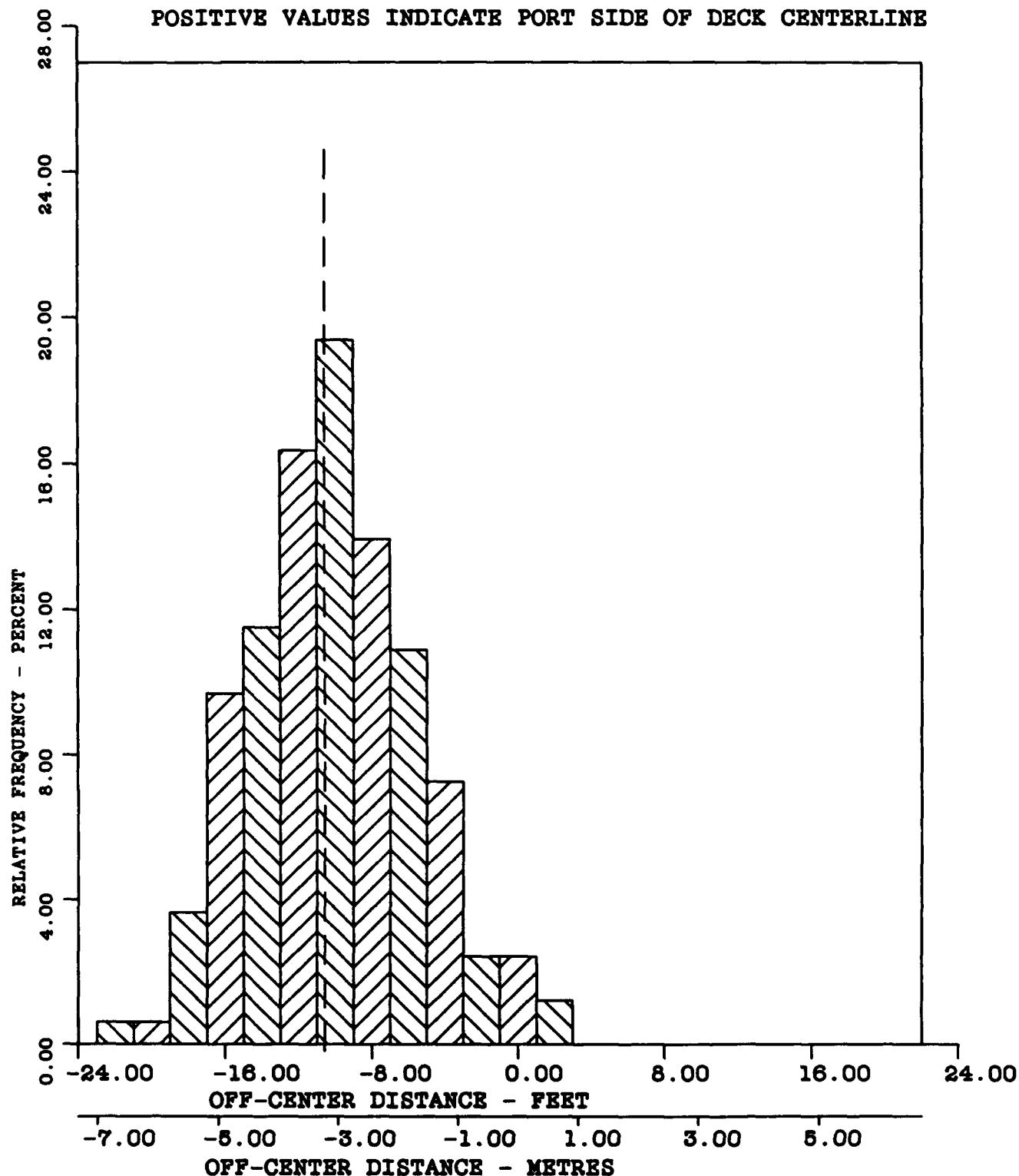


FIGURE N-35 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ --10.57 FEET (-3.22 METRES)

A3-0.22

S= 4.52 FEET (1.38 METRES)

A4-2.97

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

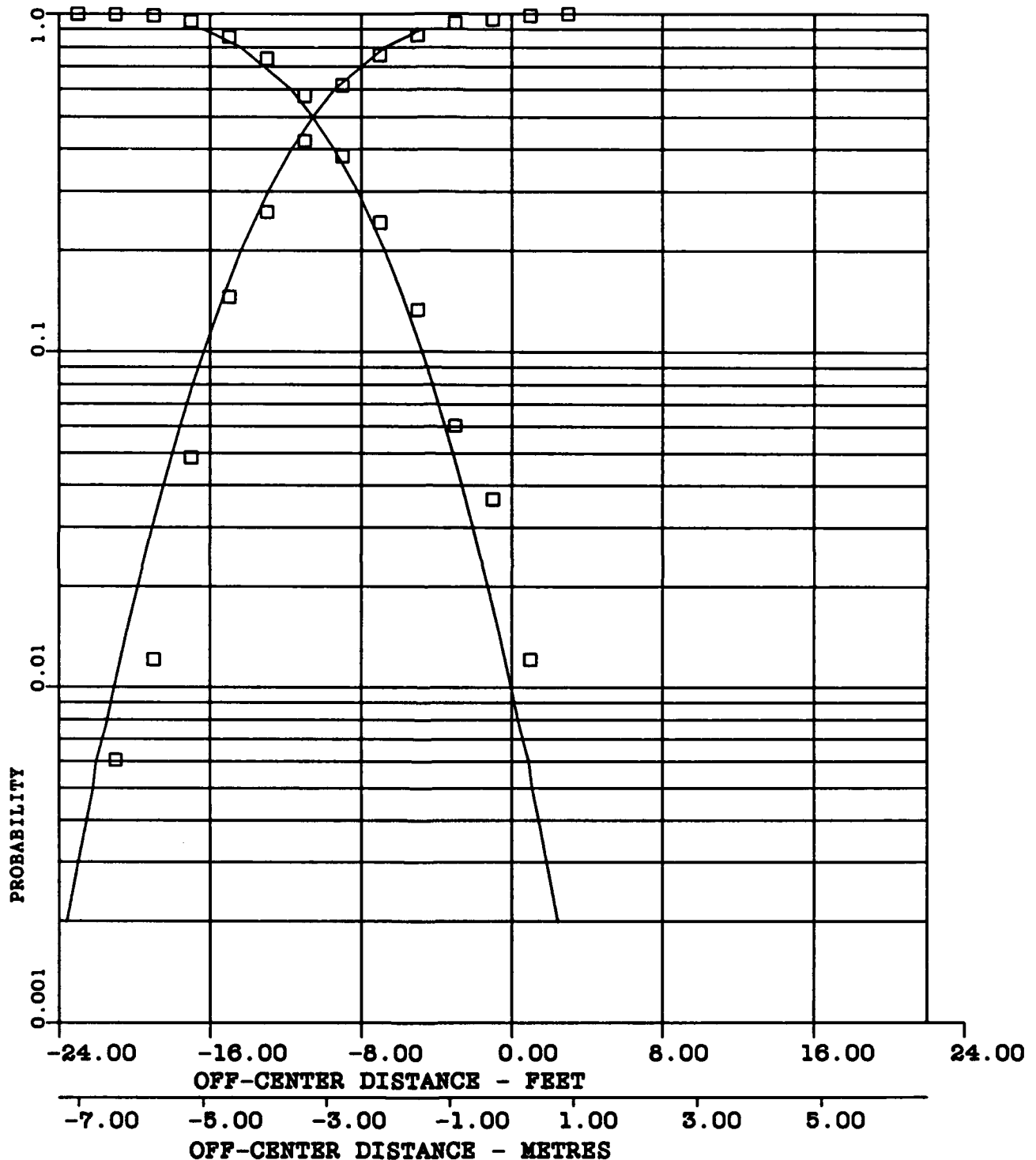


FIGURE N-36 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-131

 $\bar{X}$ -2.61

S= 0.76

A3-0.47

A4-2.34

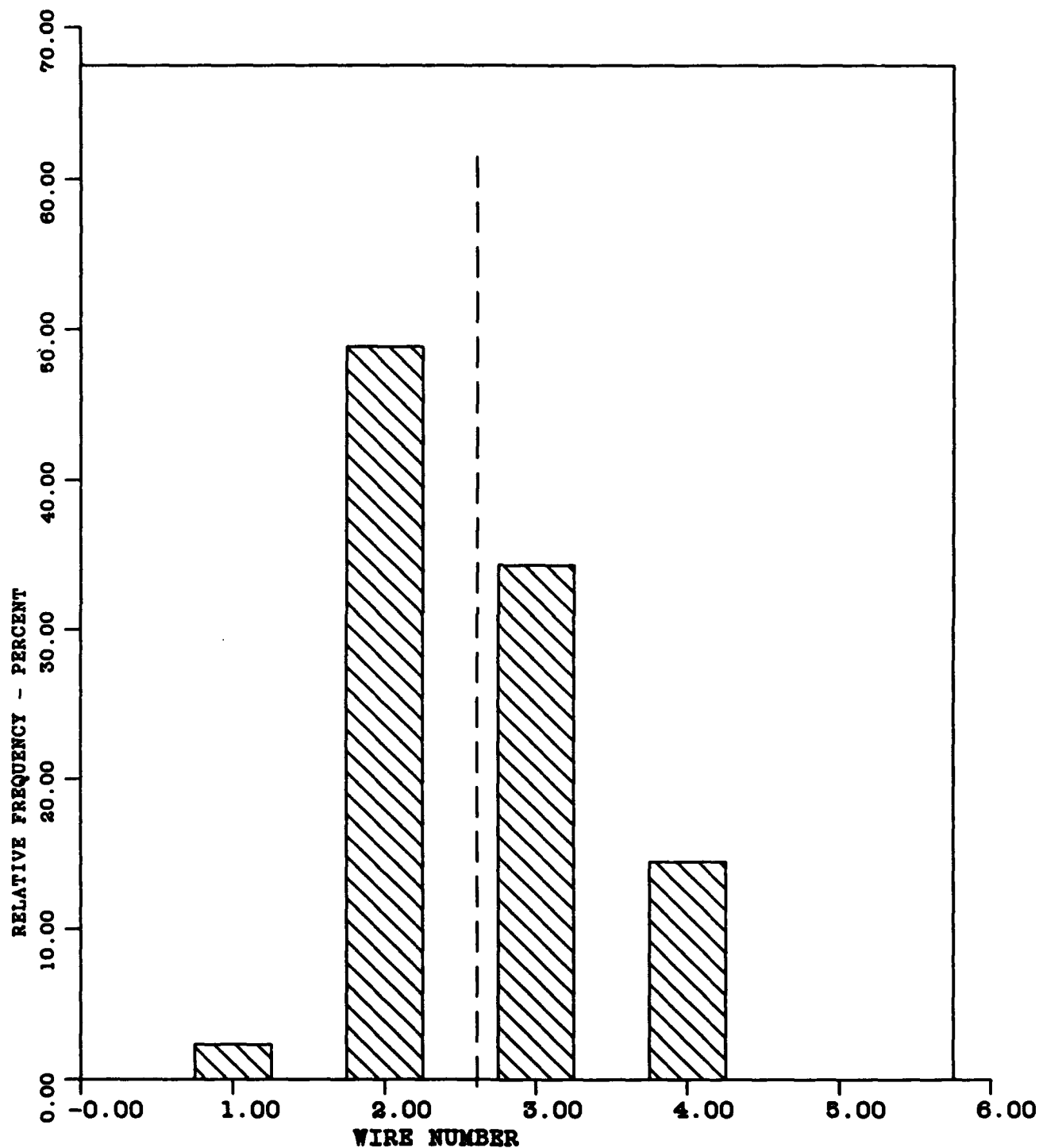


FIGURE N-37 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -2.80 DEGREES (0.049 RADIANS)

A3-0.45

S- 0.70 DEGREES (0.012 RADIANS)

A4-3.20

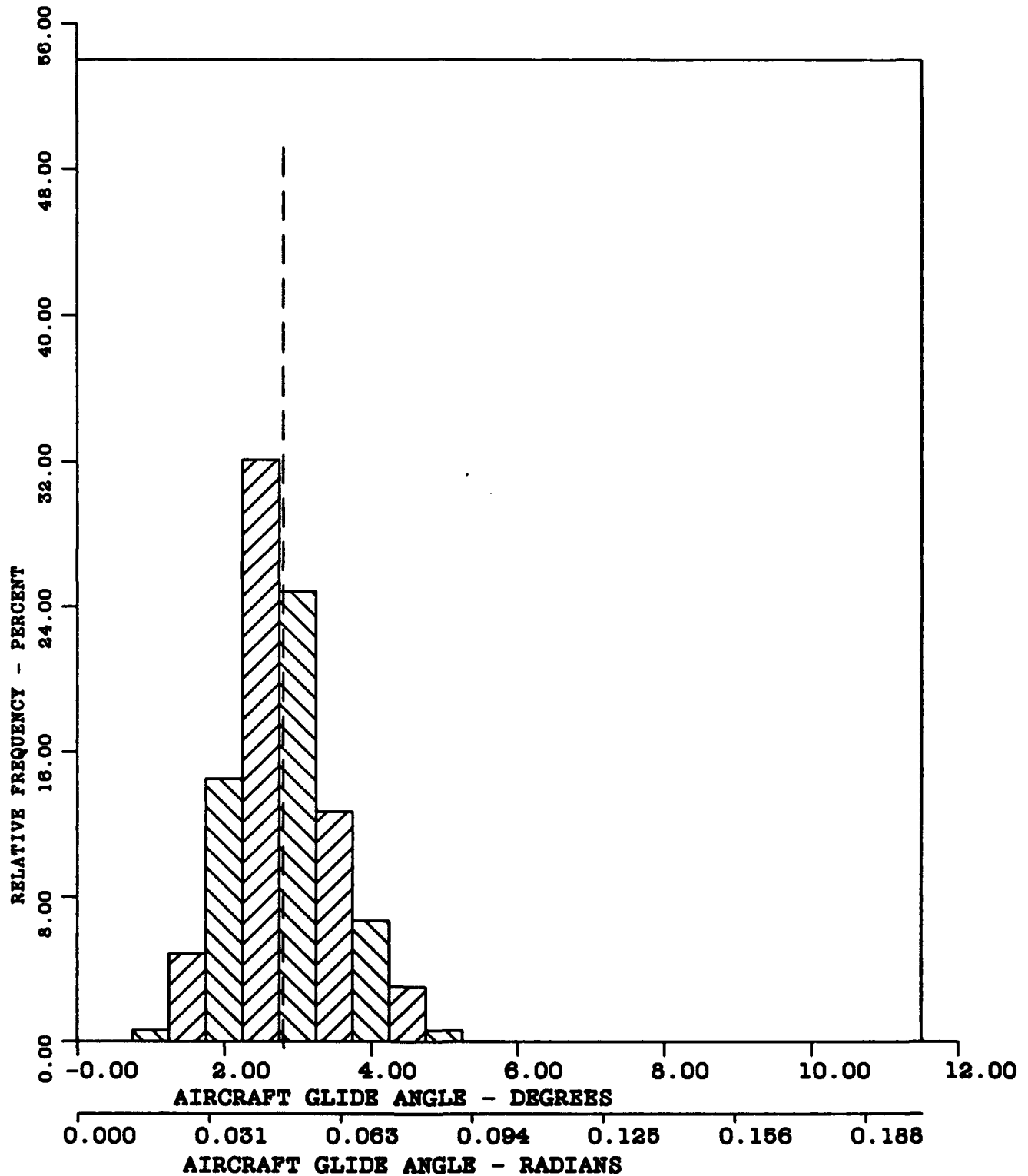


FIGURE N-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-161

 $\bar{X}$ -3.23 DEGREES (0.056 RADIANS)

A3-0.74

S- 0.67 DEGREES (0.012 RADIANS)

A4-4.01

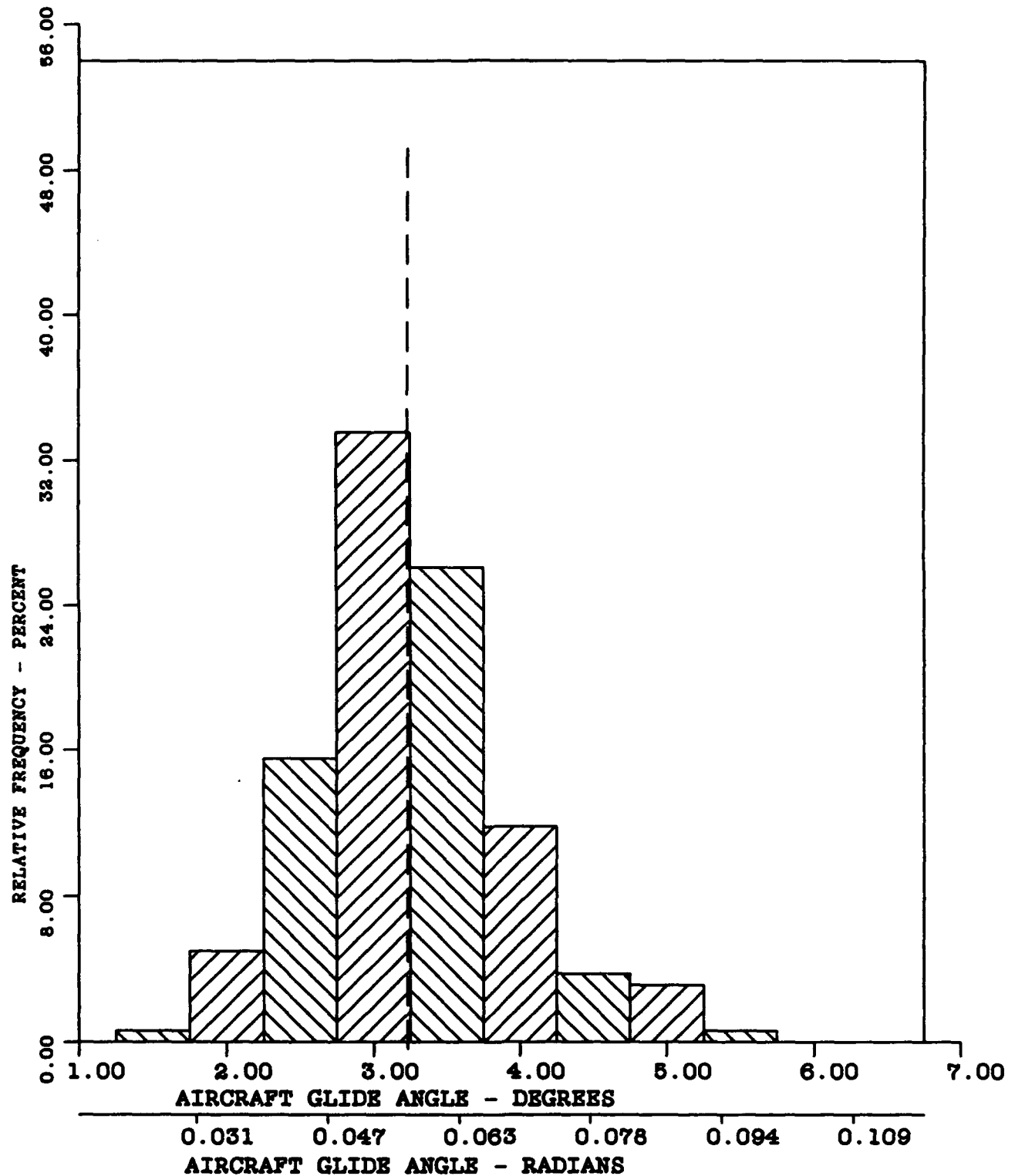


FIGURE N-39 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-161

 $\bar{X}$ -12.83 FEET (3.91 METRES)

A3-0.65

S- 2.57 FEET (0.78 METRES)

A4-3.50

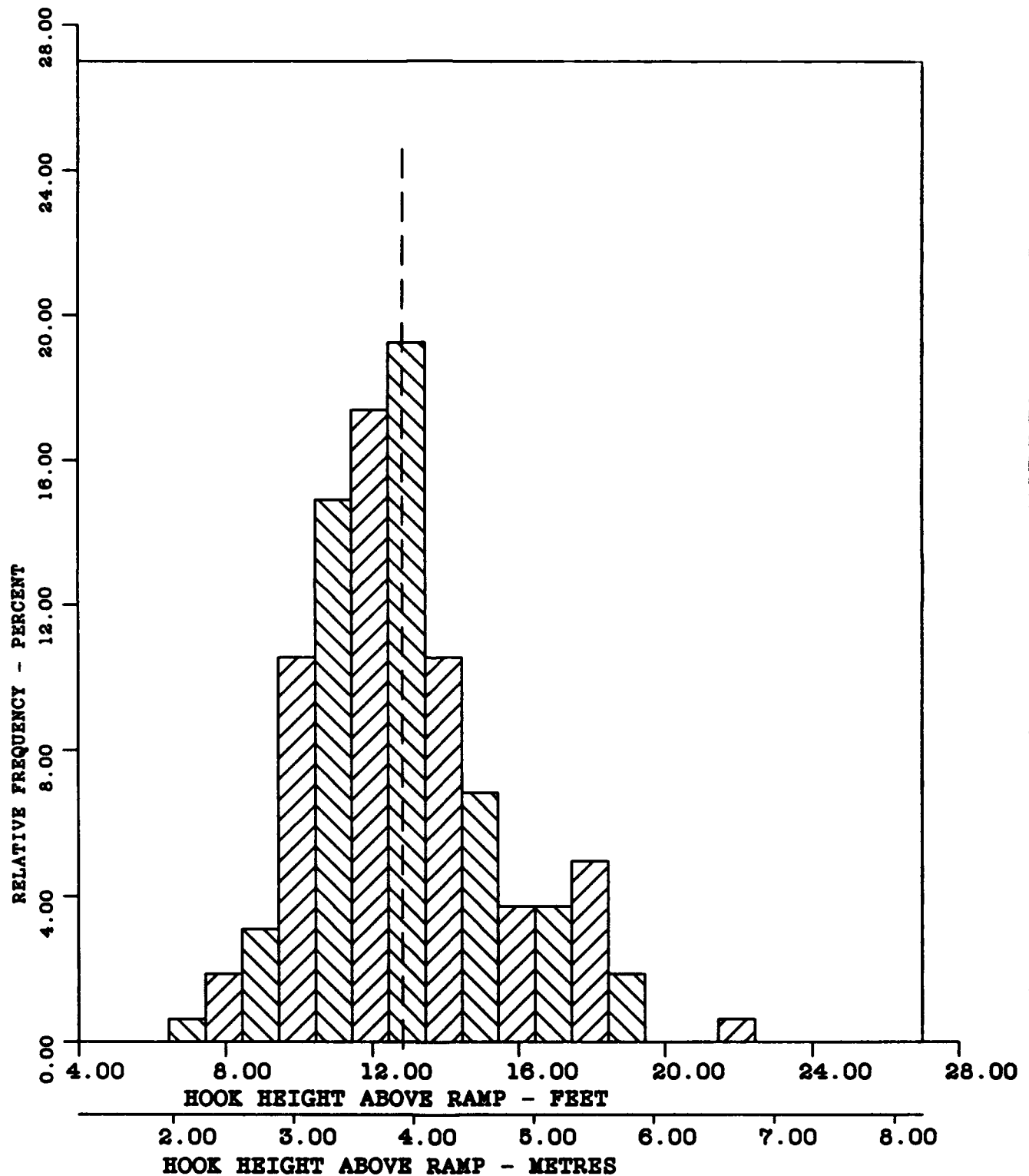


FIGURE N-40 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL S-3  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 161

 $\bar{X}$ = 12.83 FEET

S= 2.57 FEET

CURVE FITTED - PEARSON TYPE III

A3= 0.64

A4= 3.50

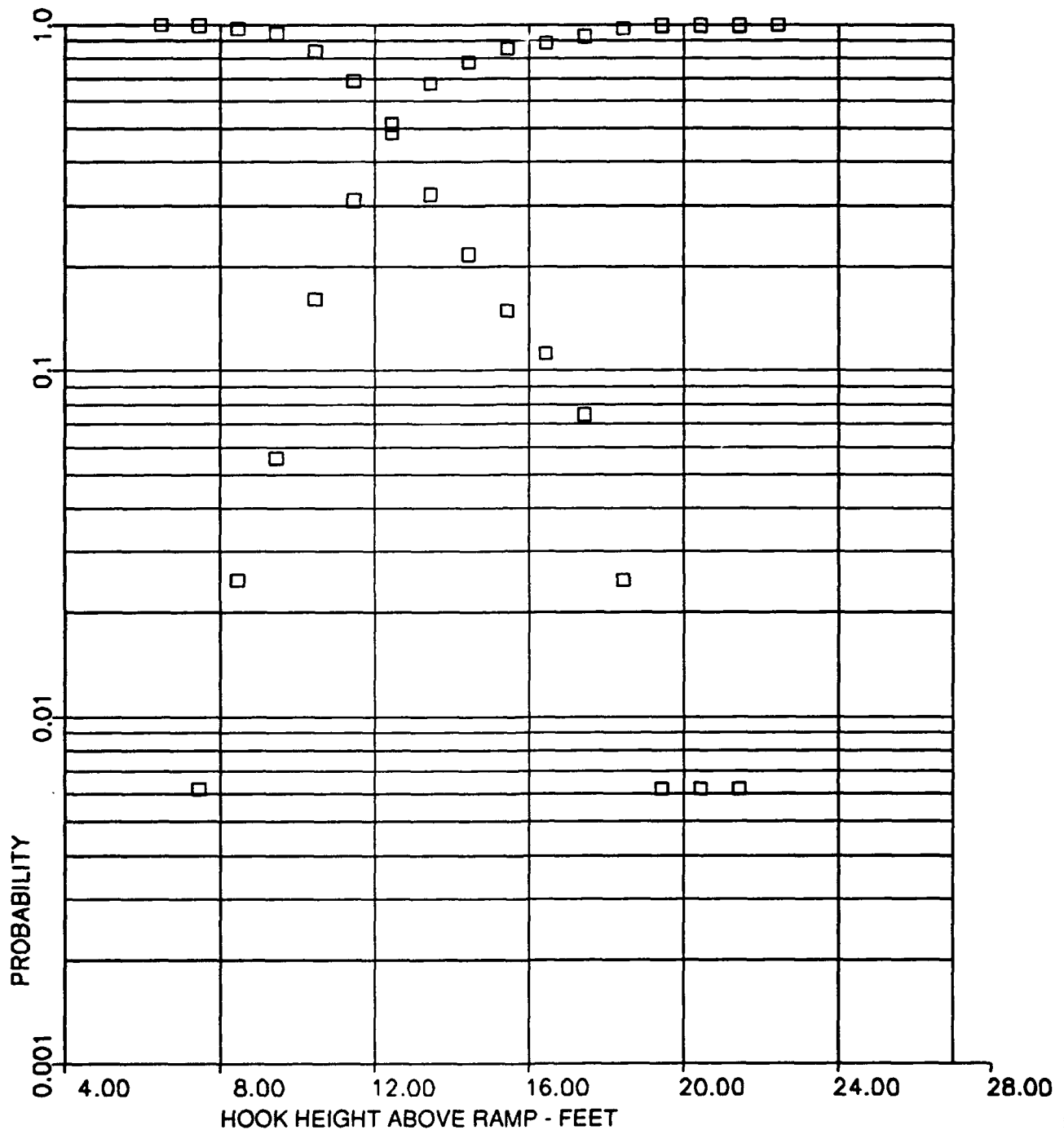


FIGURE N-41 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -93.81 KNOTS (48.25 METRES/SEC)

A3-0.09

S- 5.38 KNOTS (2.77 METRES/SEC)

A4-2.61

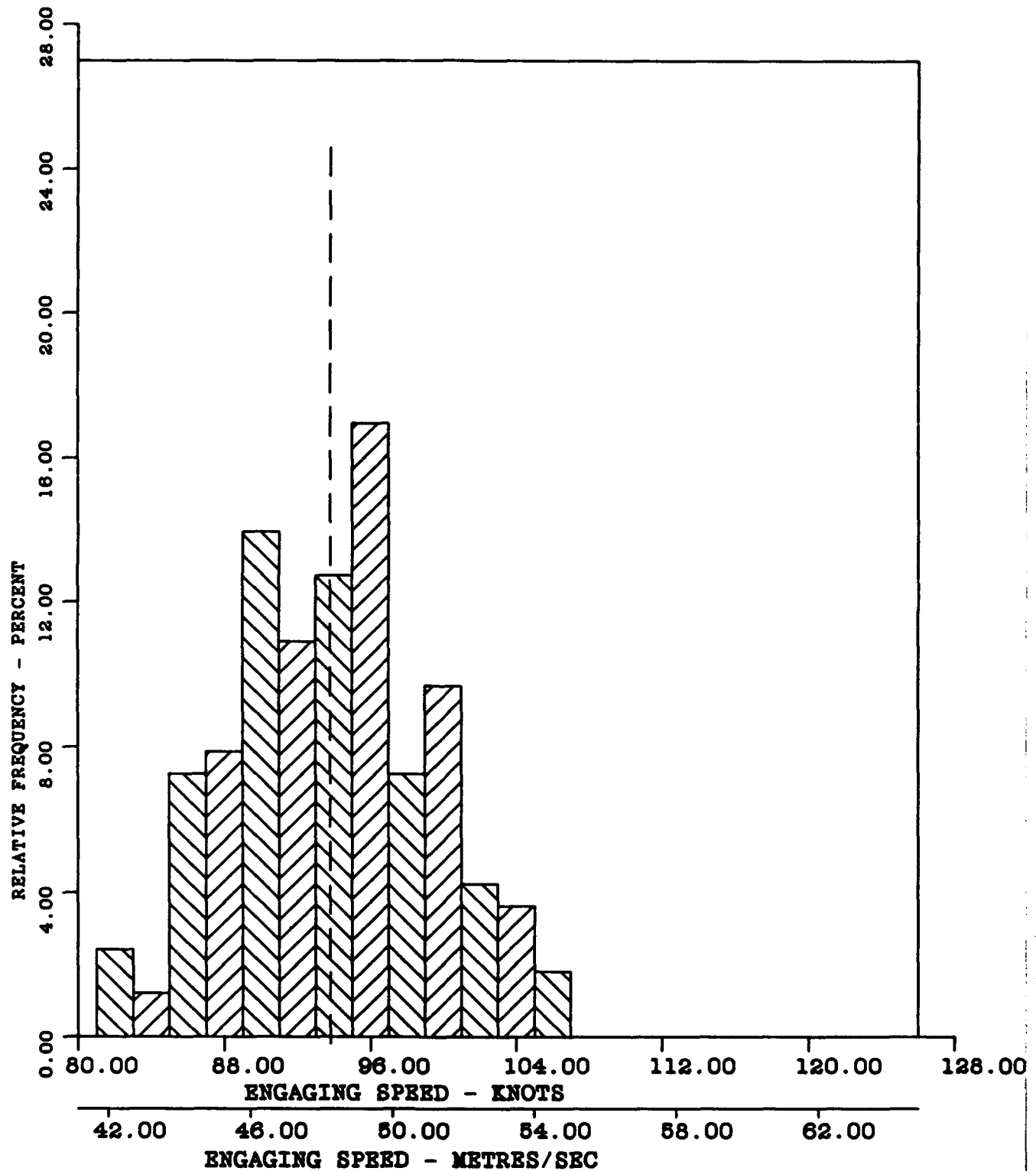


FIGURE N-42 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -93.81 KNOTS (48.25 METRES/SEC)

A3-0.09

S- 5.38 KNOTS (2.77 METRES/SEC)

A4-2.61

CURVE FITTED - NORMAL

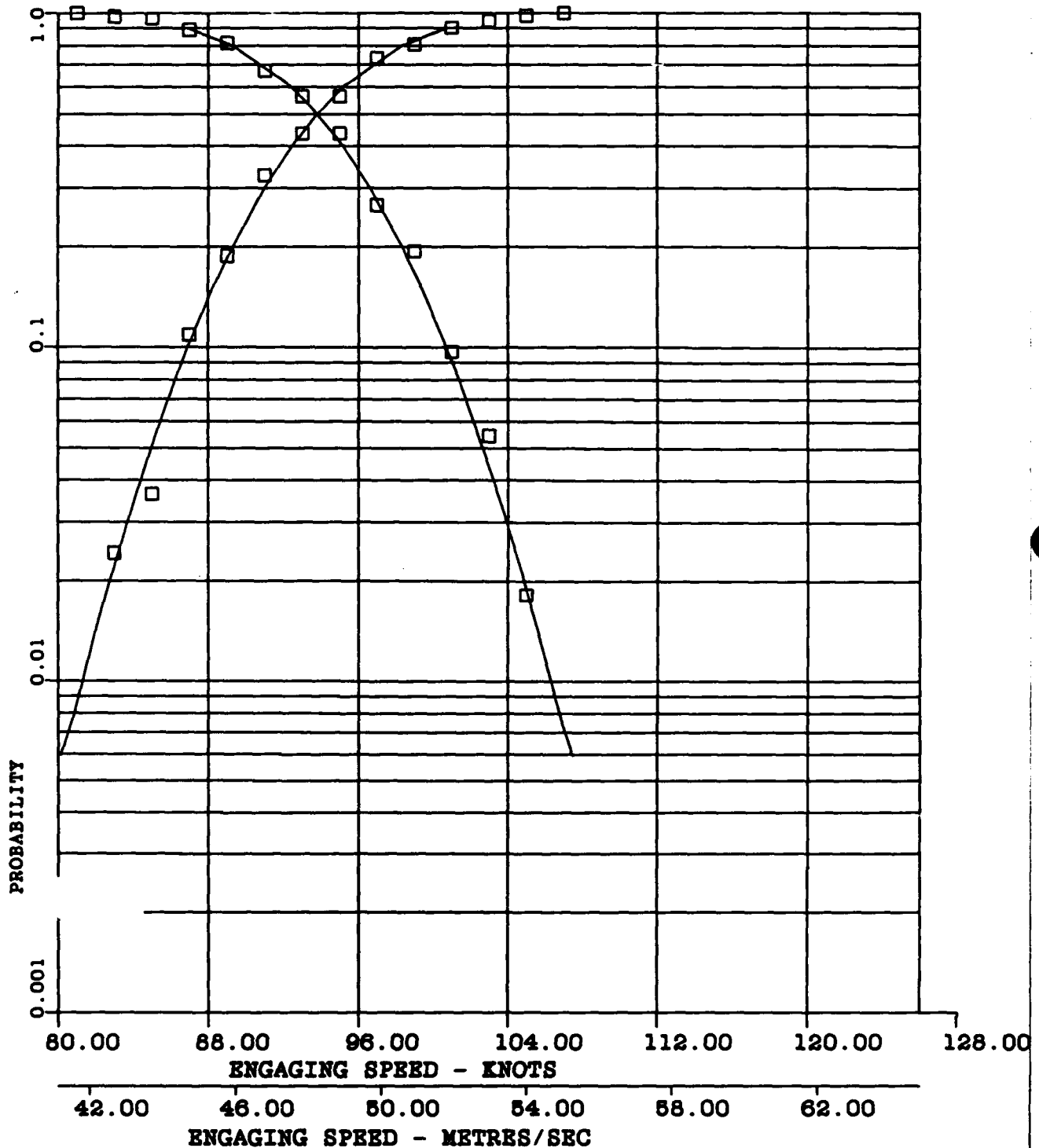


FIGURE N-43 PROBABILITY DISTRIBUTION OF ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-164

 $\bar{X}$ -105.05 KNOTS (54.04 METRES/SEC)

A3-0.29

S- 2.14 KNOTS (1.10 METRES/SEC)

A4-2.37

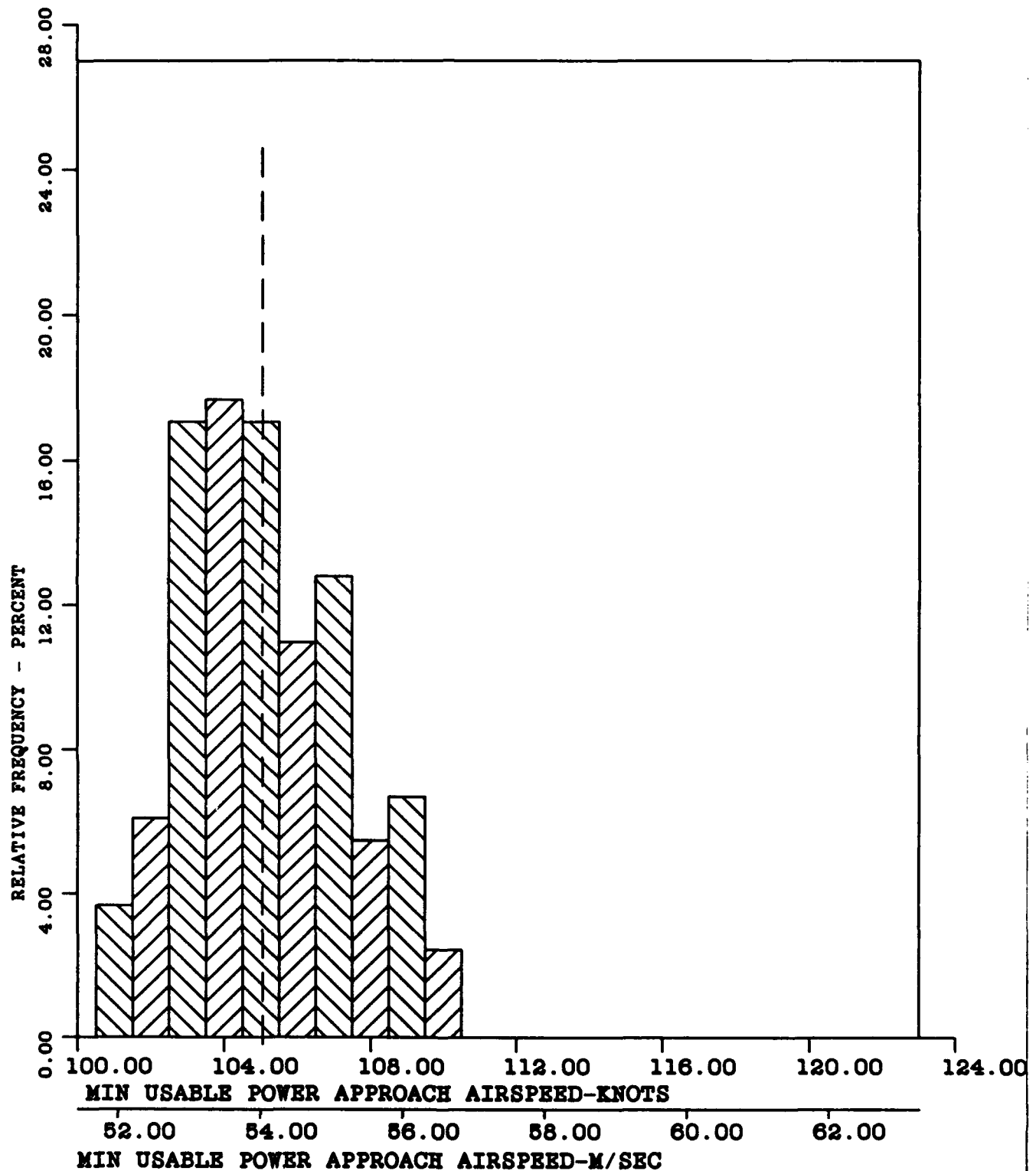


FIGURE N-44 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-164

 $\bar{X}$ -1.16

A3-0.18

S- 0.05

A4-2.74

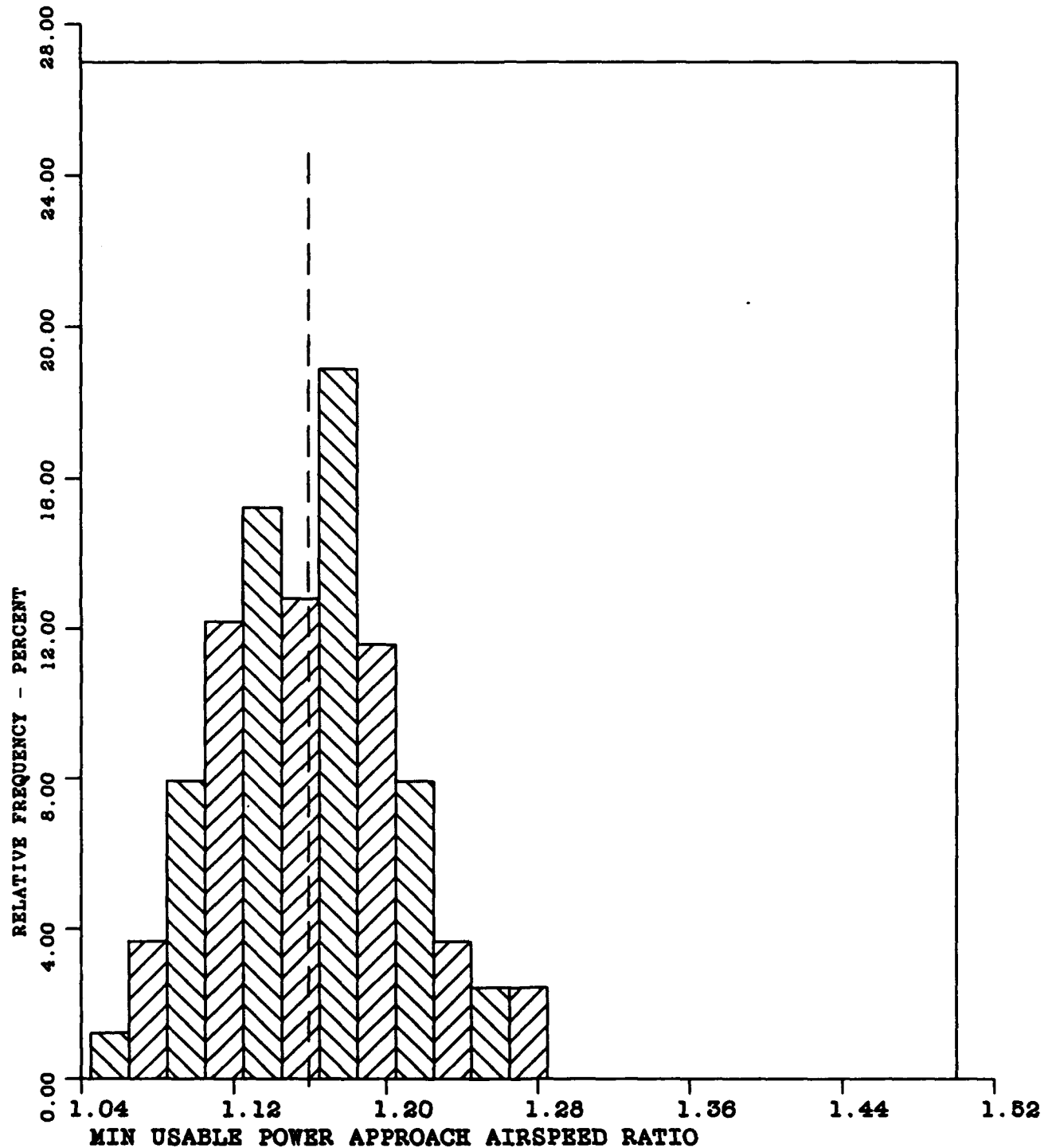


FIGURE N-45 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-149

 $\bar{X}$ --0.42 DEGREES (-0.007 RADIANS)

A3-0.12

S- 1.09 DEGREES (0.019 RADIANS)

A4-3.59

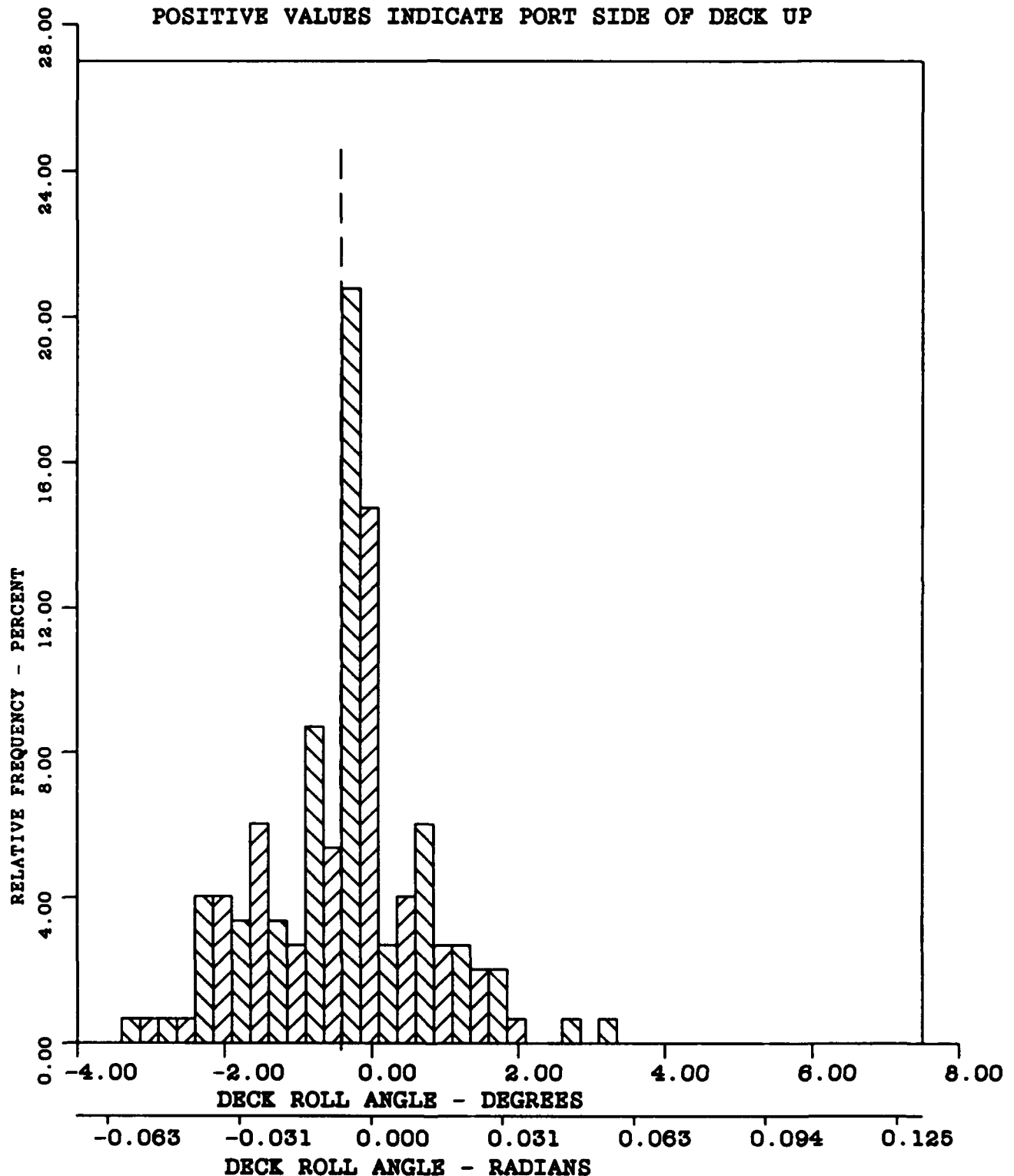


FIGURE N-46 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL S-3  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 149

 $\bar{X} = -0.42$  DEGREES

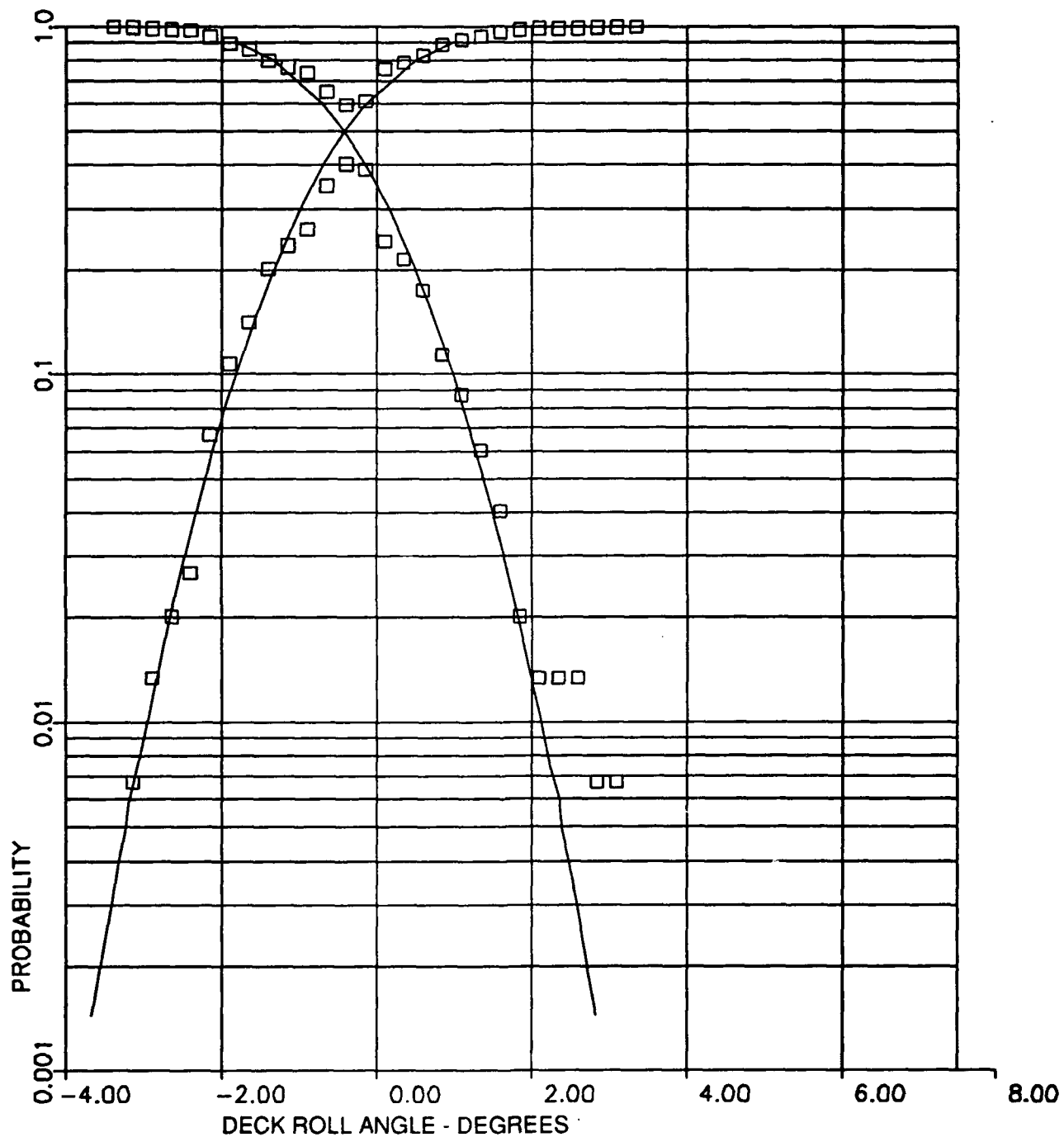
S= 1.09 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

A3= 0.12

A4= 3.59

FIGURE N-47 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-149

 $\bar{X}$ -0.26 DEGREES (-0.004 RADIANS)

A3--0.04

S- 0.21 DEGREES (0.004 RADIANS)

A4=2.37

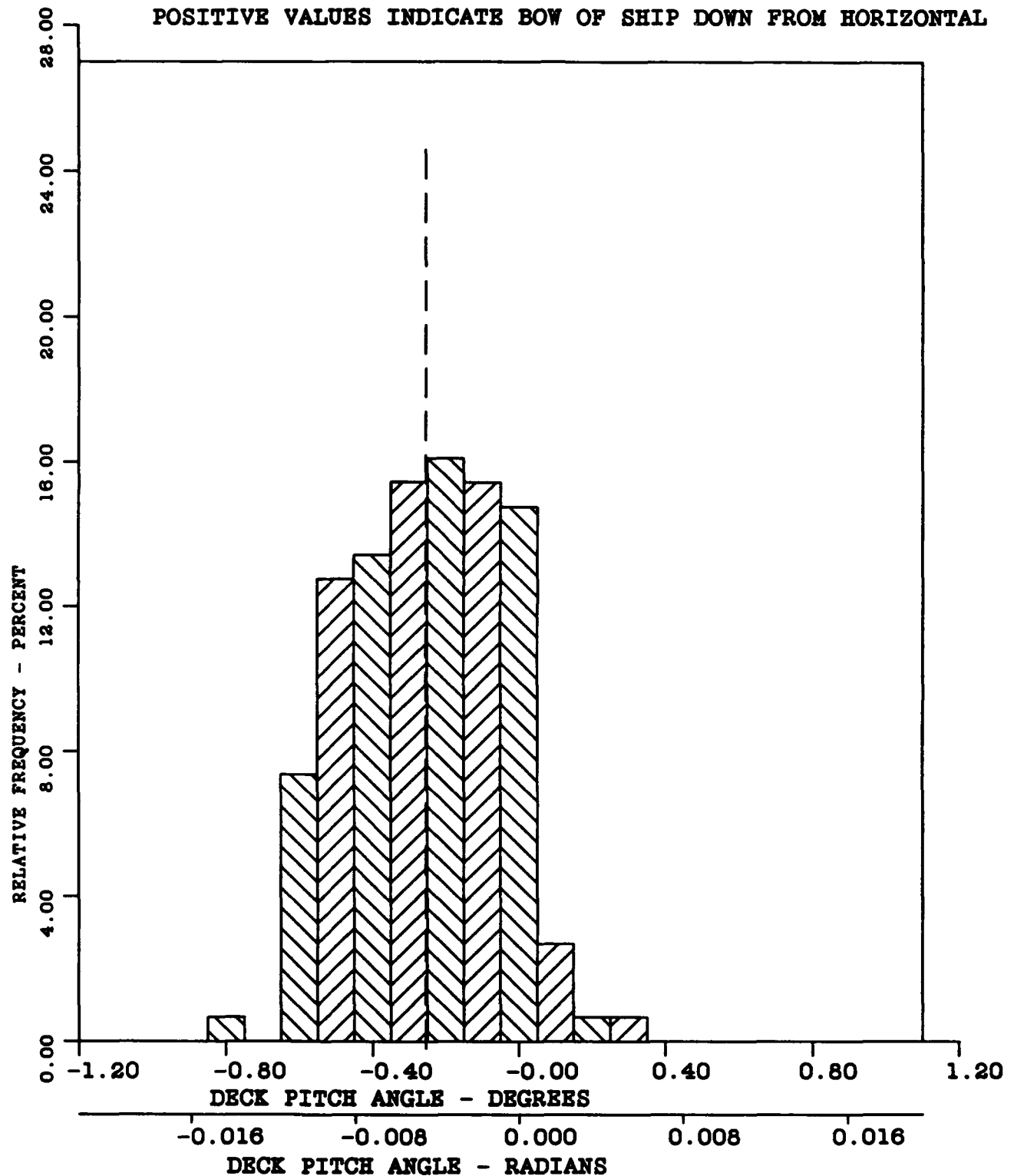


FIGURE N-48 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-149

 $\bar{X}$ -0.26 DEGREES (-0.004 RADIANS)

A3--0.04

S- 0.21 DEGREES (0.004 RADIANS)

A4-2.37

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

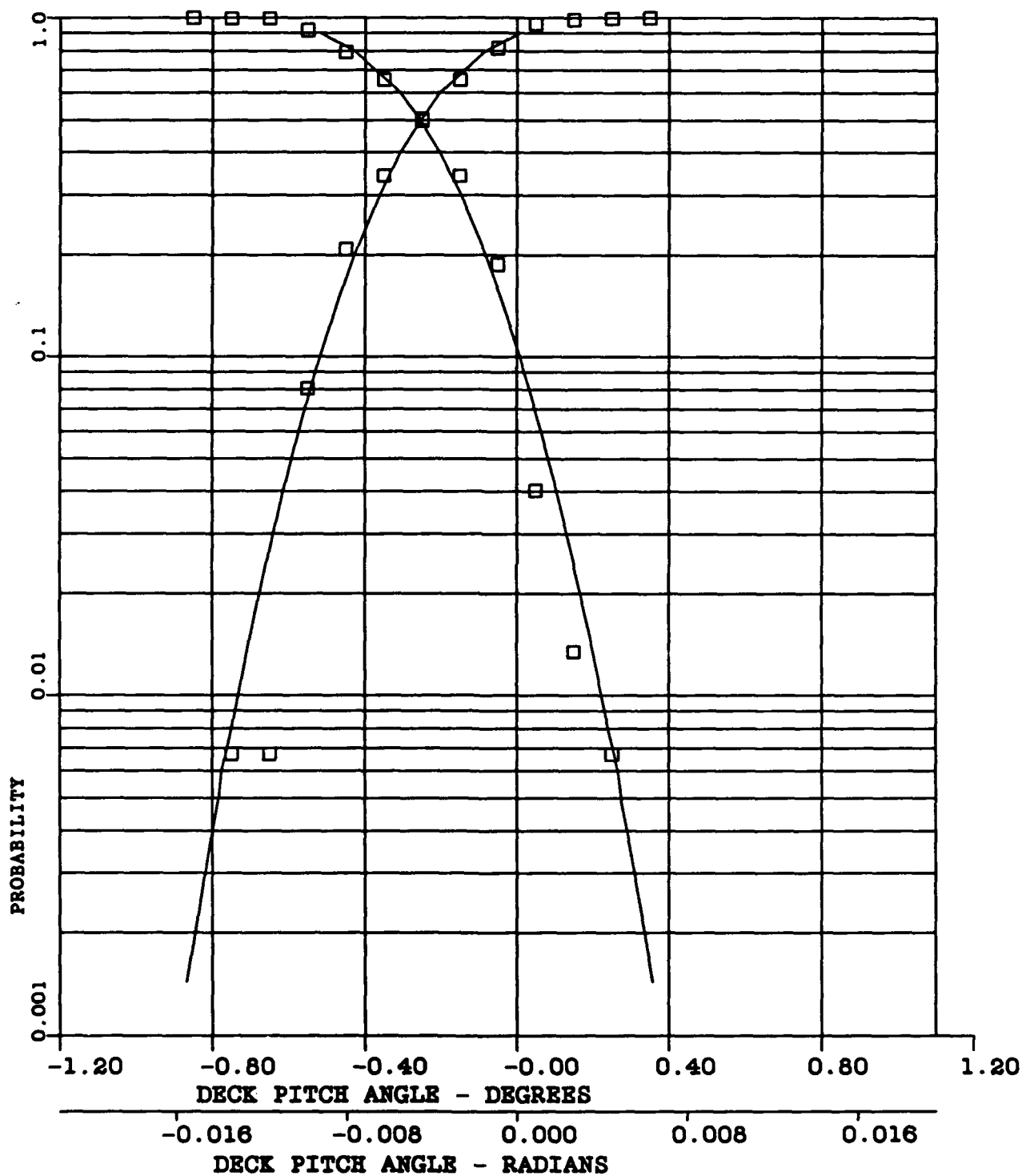


FIGURE N-49 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-164

 $\bar{X}$ -36764.00 POUNDS (16676.15 KILOGRAMS)

A3-0.33

S- 1500.69 POUNDS (680.71 KILOGRAMS)

A4-2.39

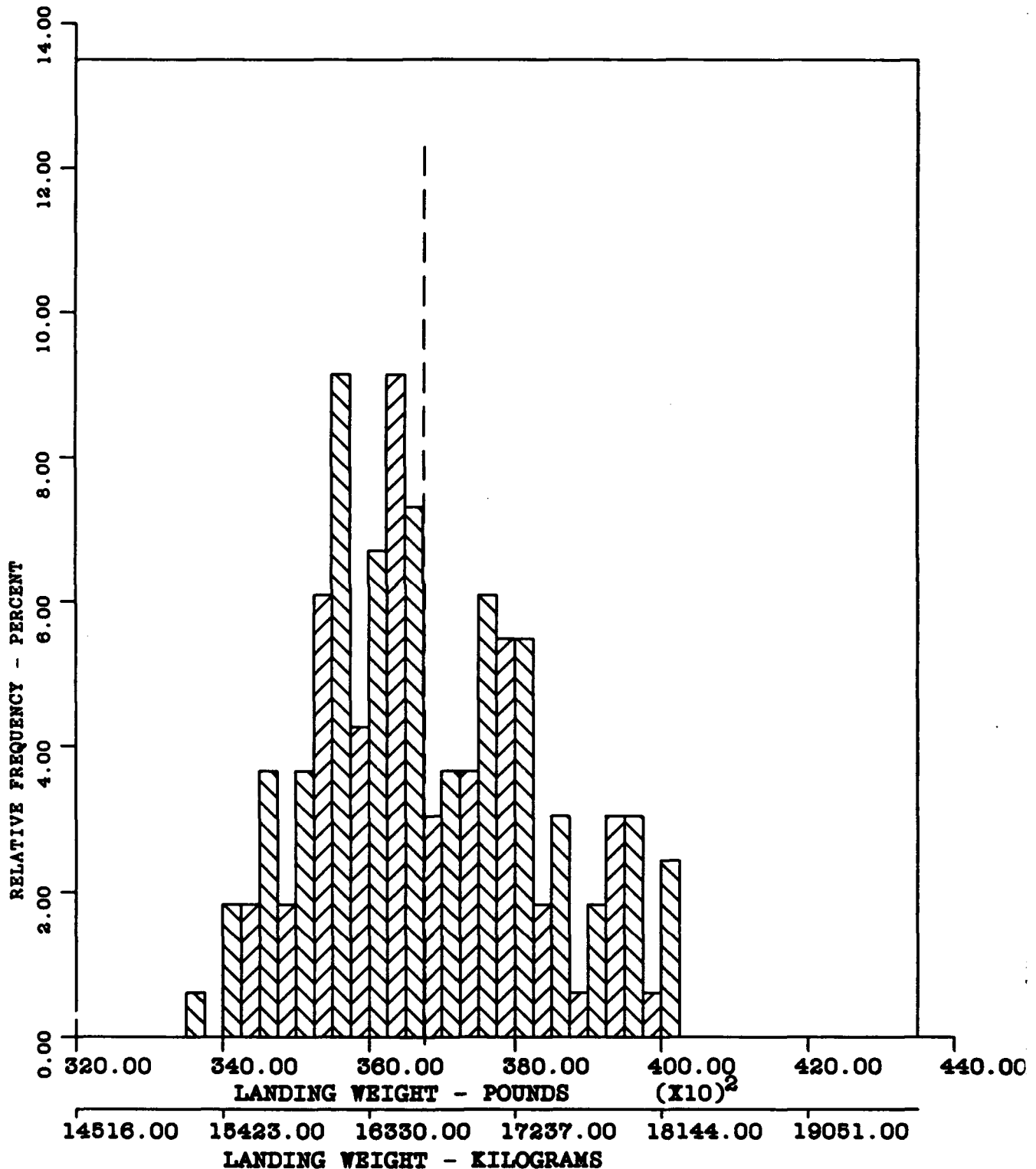


FIGURE N-50 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -1.02 DEG/SEC (0.018 RAD/SEC)

A3-0.07

S- 4.10 DEG/SEC (0.072 RAD/SEC)

A4-3.81

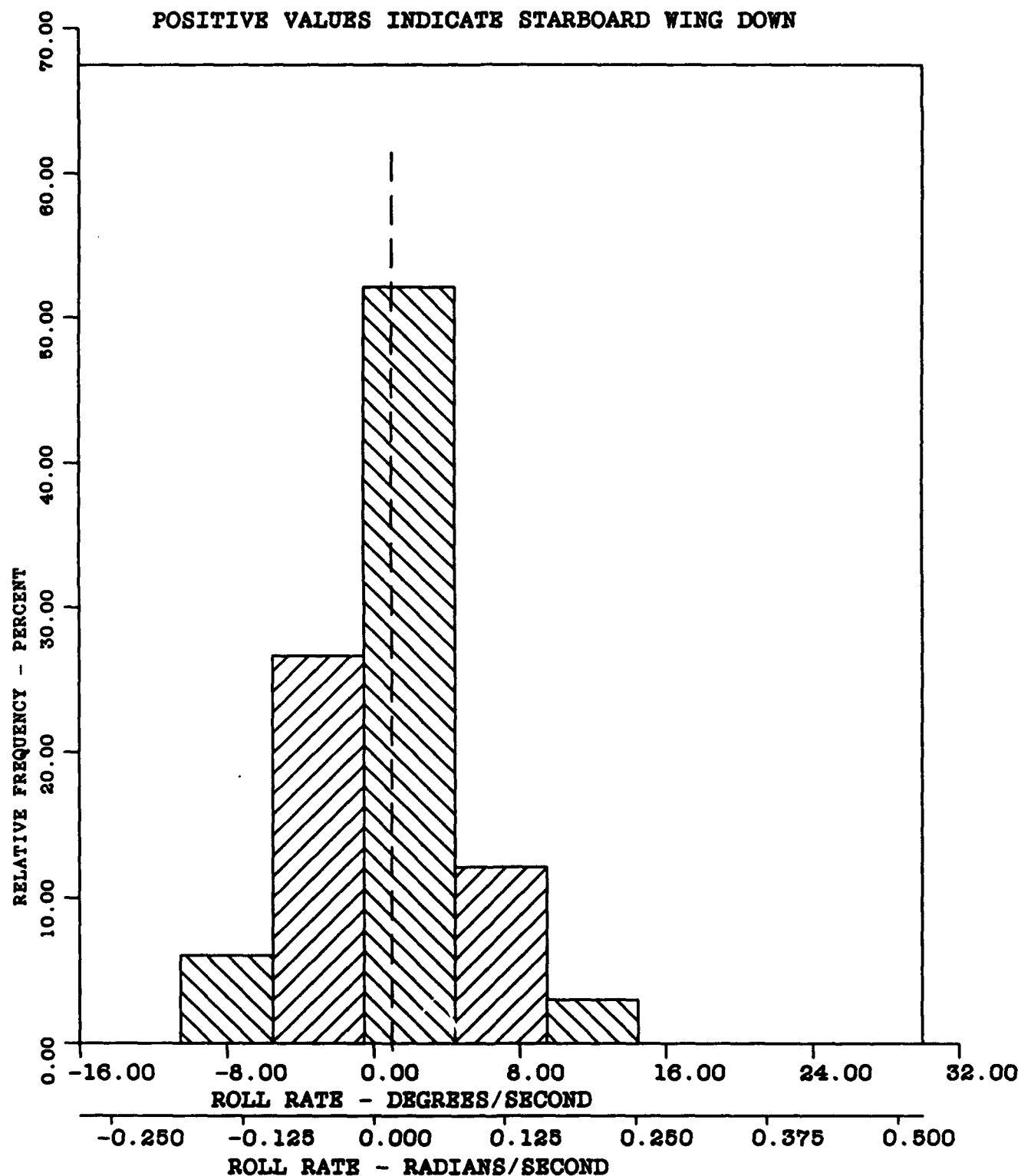


FIGURE N-51 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN



MODEL S-3

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 165

 $\bar{X}$ = 1.02 DEG/SEC

S= 4.10 DEG/SEC

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

A3= 0.07

A4= 3.81

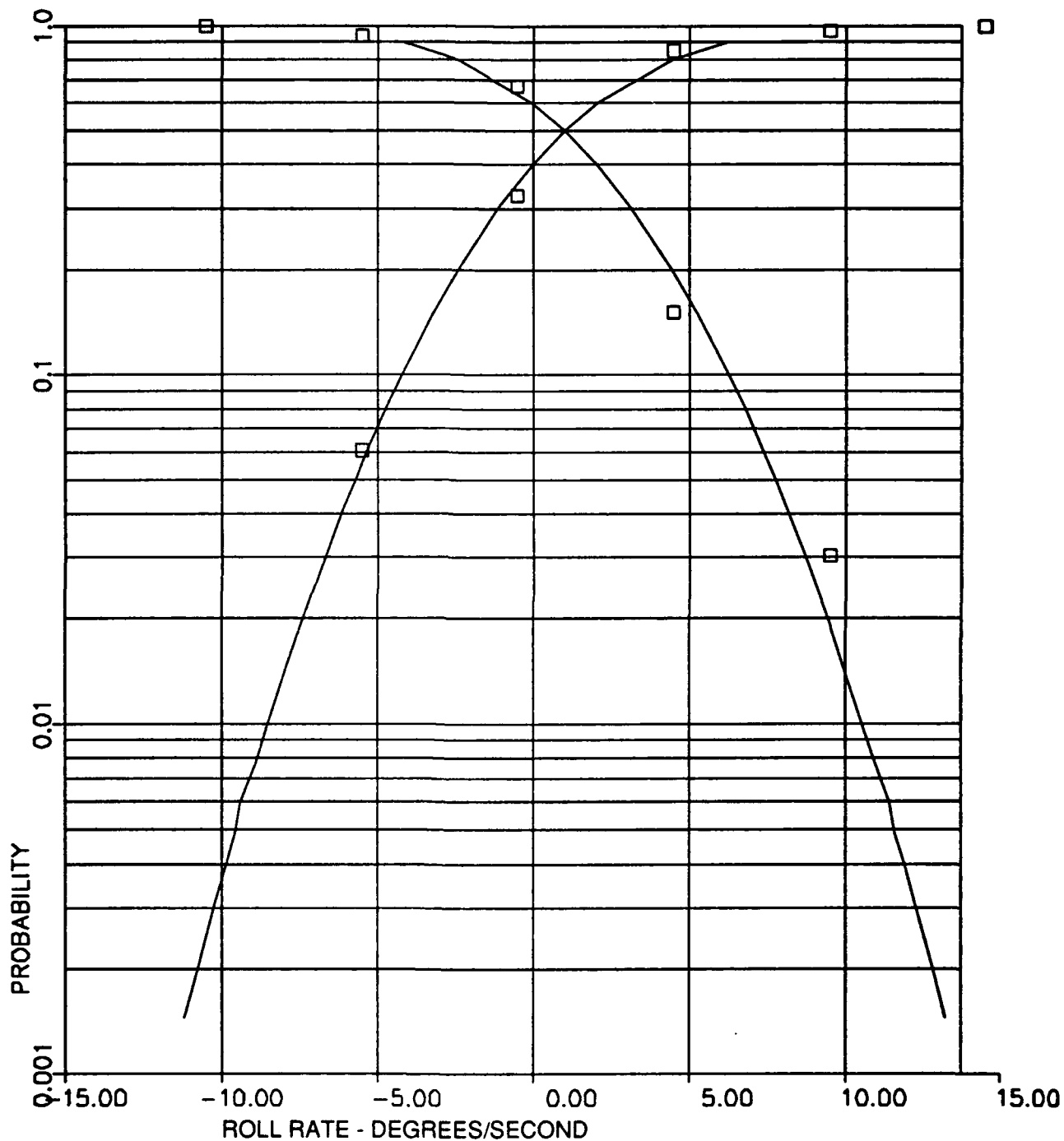


FIGURE N-52 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RAD/SEC)

N-165

 $\bar{X}$ -0.05 DEG/SEC (-0.001 RAD/SEC)

A3--0.11

S= 2.57 DEG/SEC (0.045 RAD/SEC)

A4-4.87

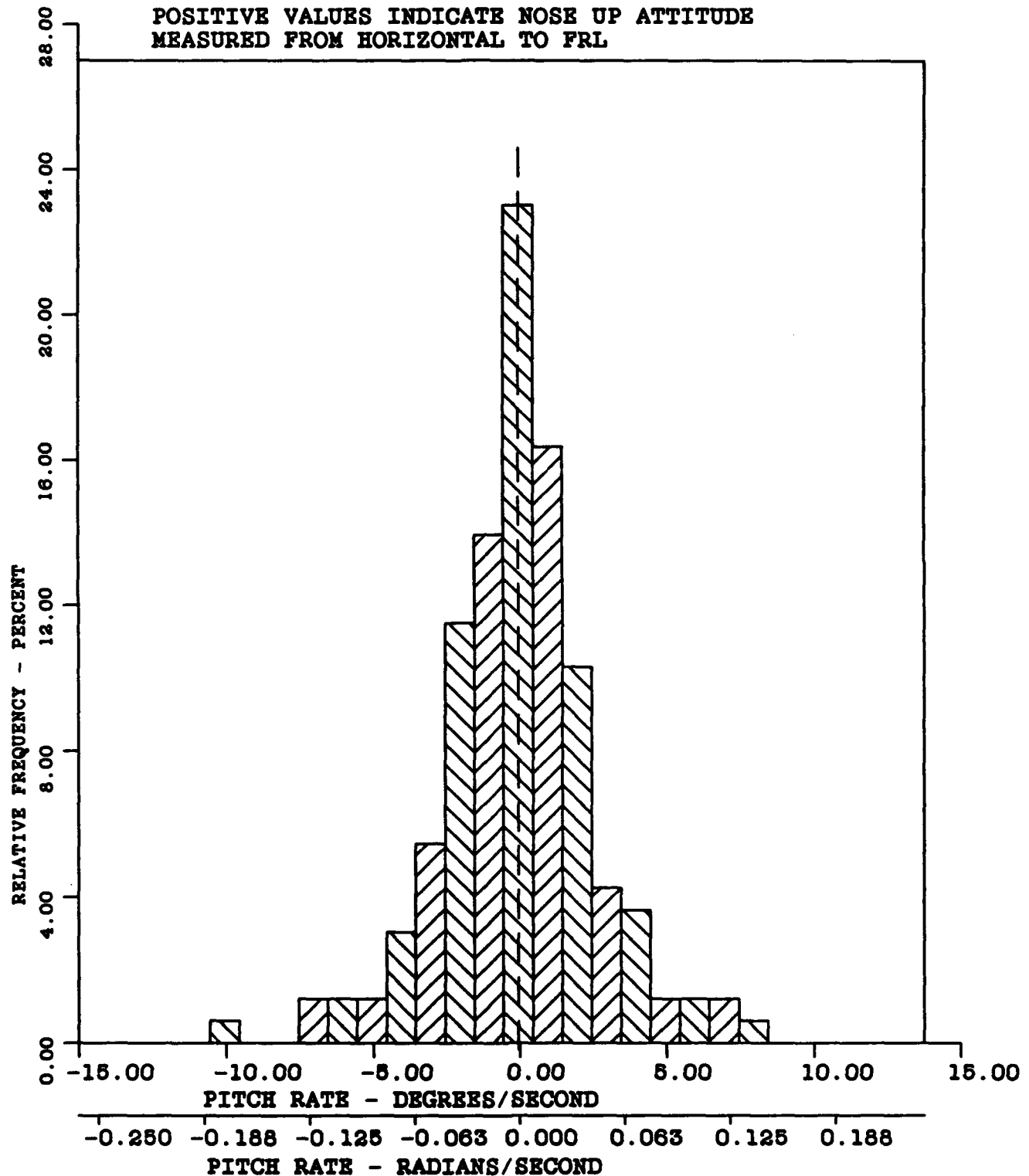


FIGURE N-53 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIAN)

N-165

 $\bar{X} = -0.05$  DEG/SEC ( $-0.001$  RAD/SEC)

A3=-0.11

S= 2.57 DEG/SEC (0.045 RAD/SEC)

A4=4.87

CURVE FITTED - NORMAL

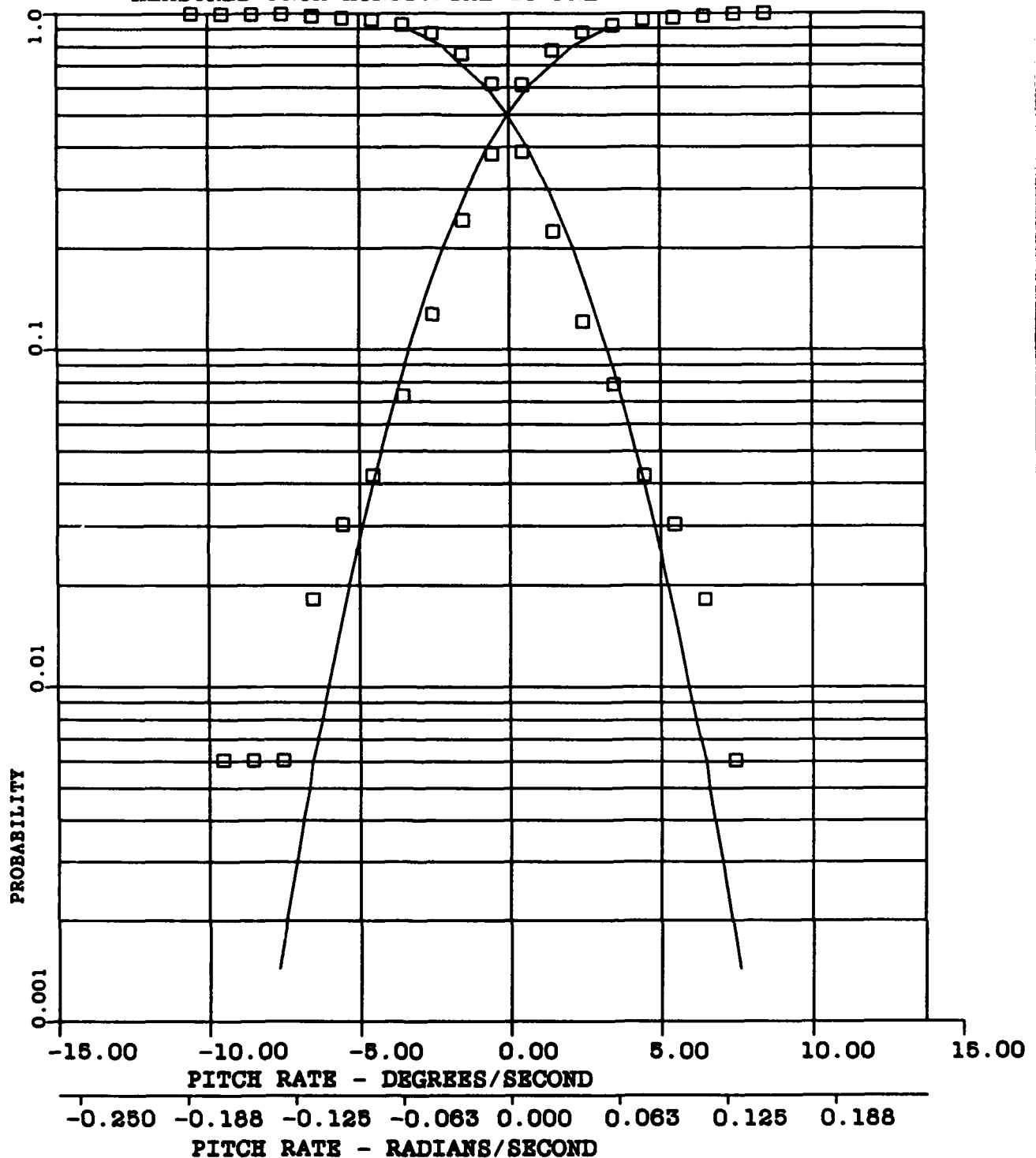
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE N-54 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -3.08 DEGREES (-0.054 RADIANS)

A3-0.60

S- 1.13 DEGREES (0.020 RADIANS)

A4-4.30

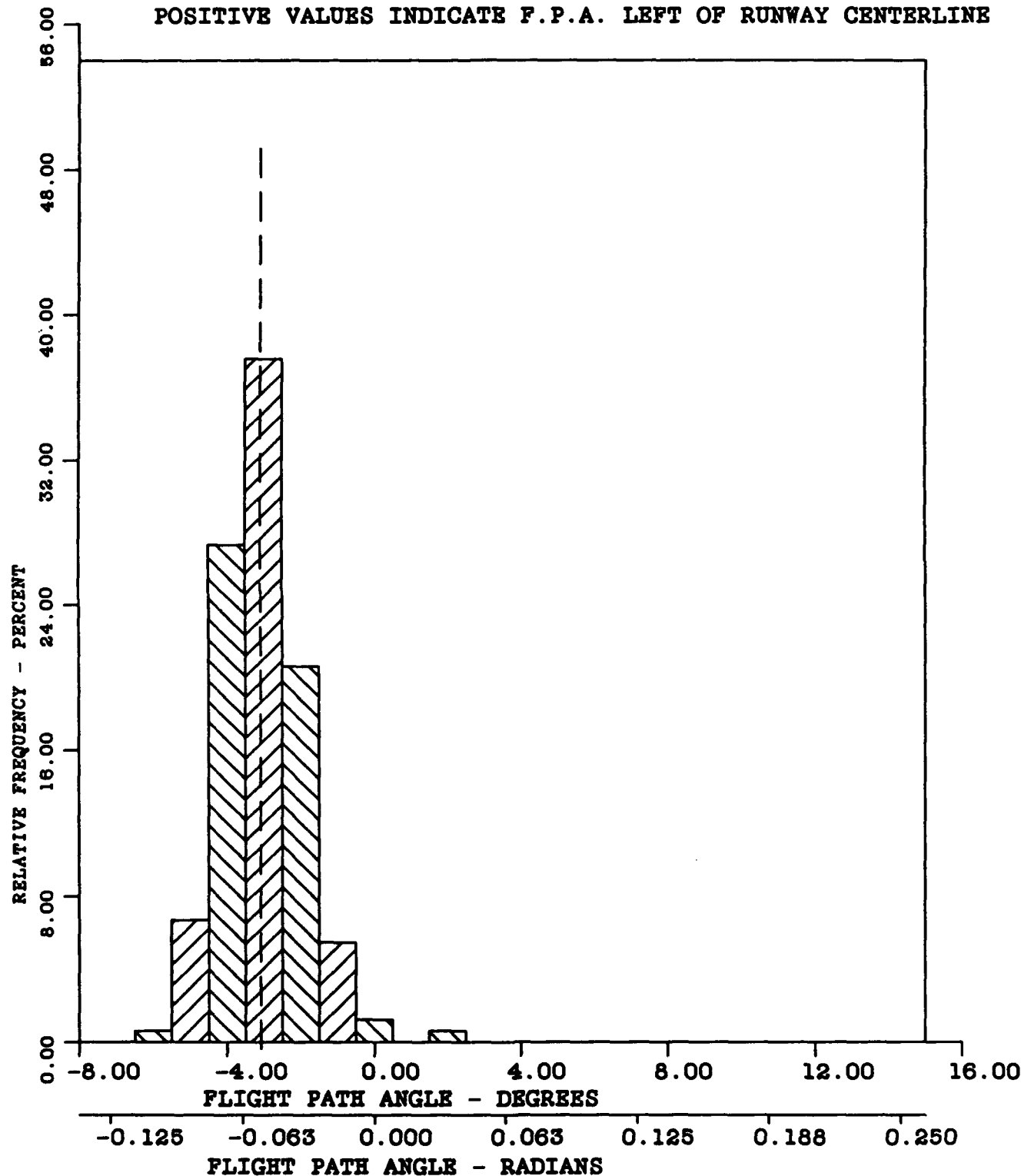


FIGURE N-55 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL S-3  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 165

 $\bar{X}$ = -3.08 DEGREES

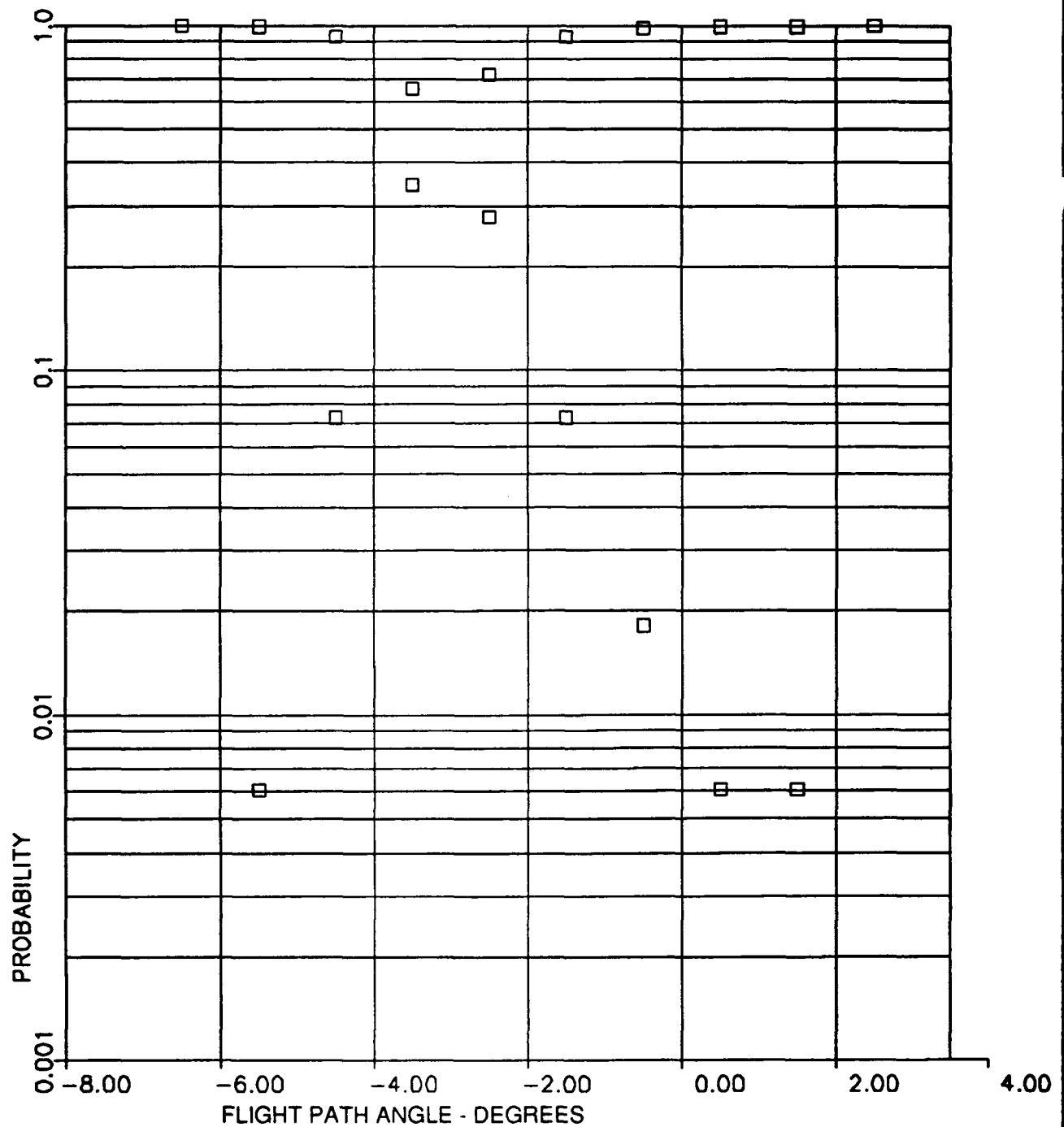
S= 1.13 DEGREES

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

A3= 0.60

A4= 4.30

FIGURE N-56 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -1.76 DEGREES (0.031 RADIANS)

A3-0.05

S- 2.92 DEGREES (0.051 RADIANS)

A4-2.72

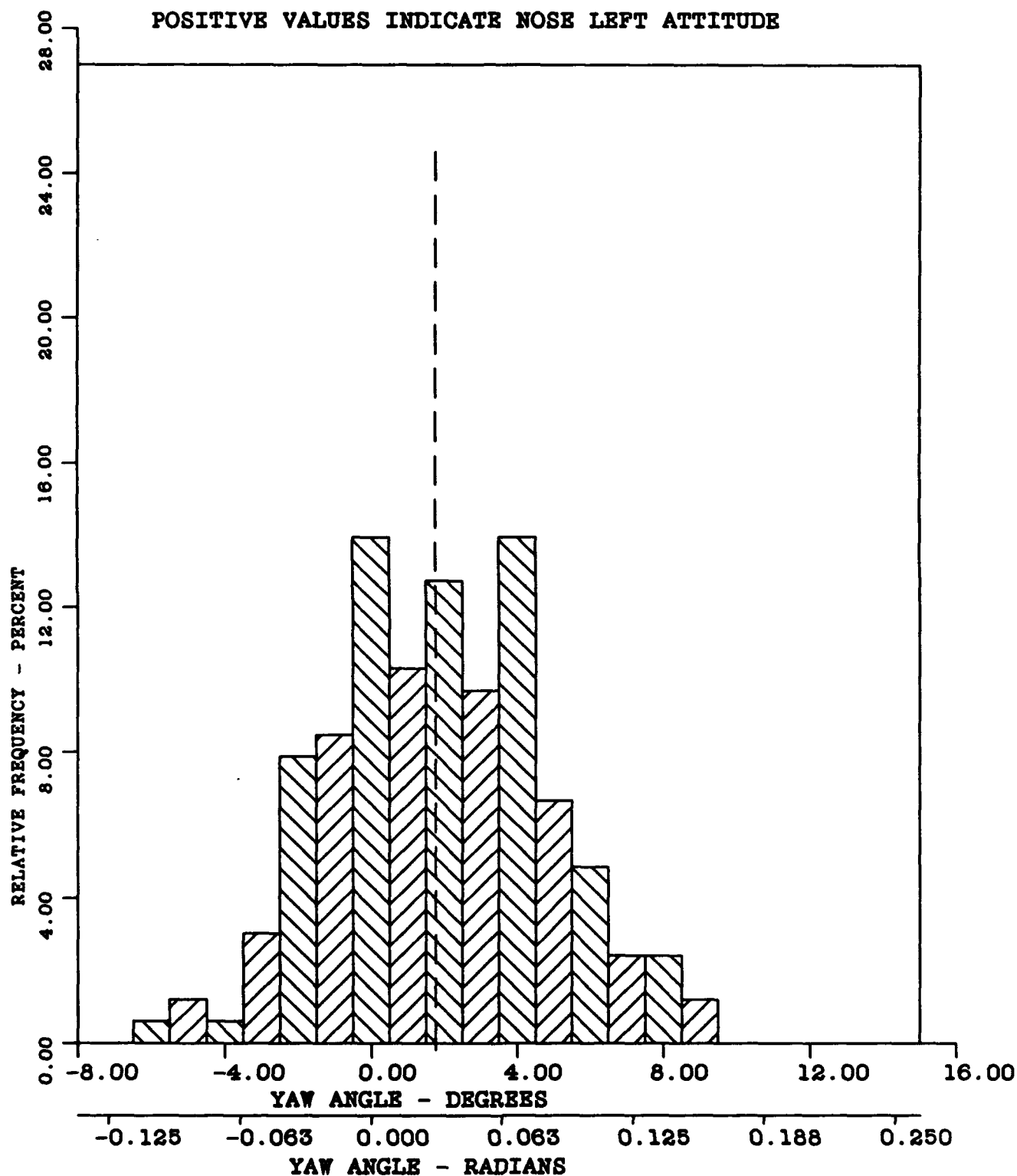


FIGURE N-57 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-165

 $\bar{X}$ -1.76 DEGREES (0.031 RADIANS)

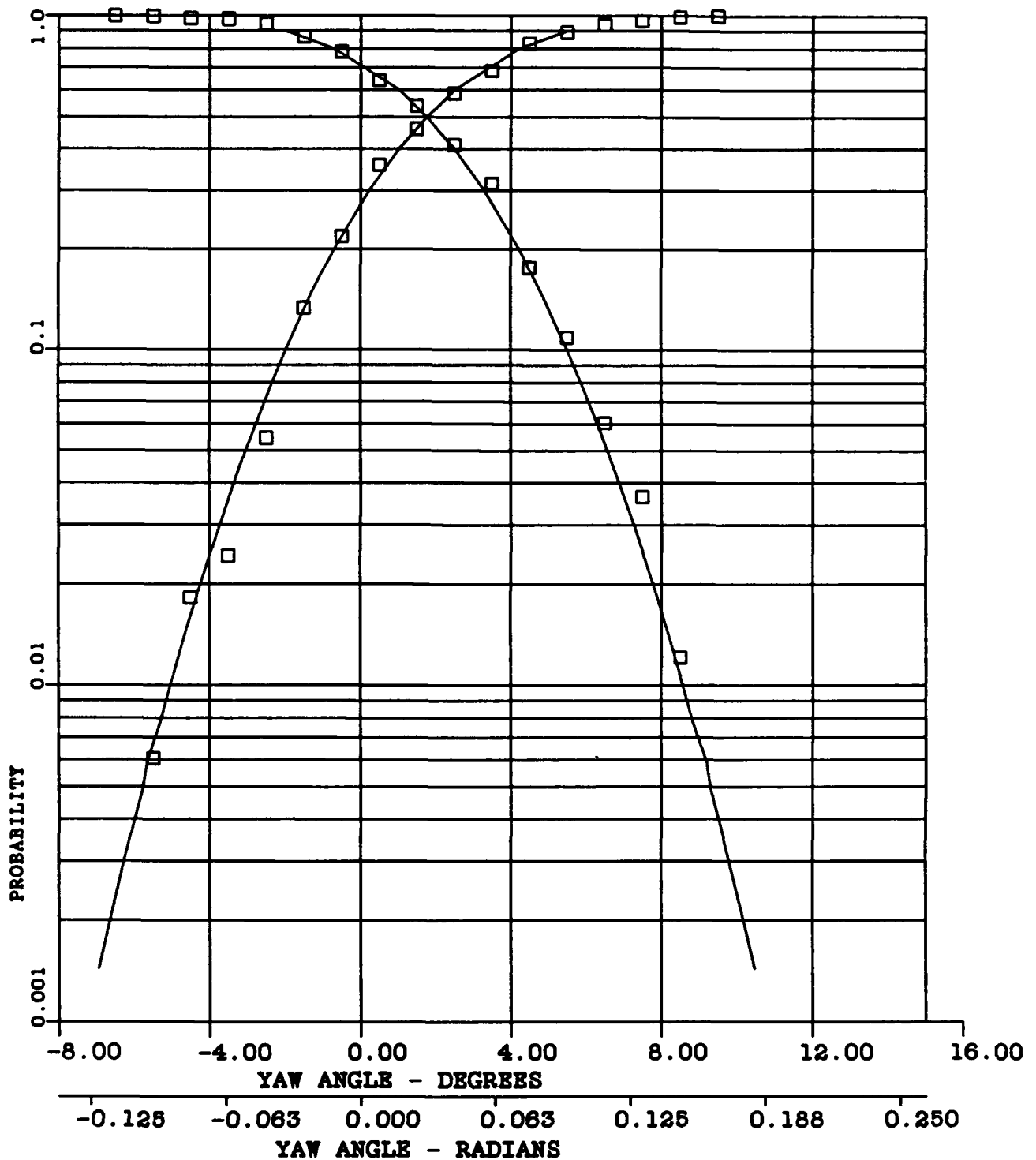
A3-0.05

S- 2.92 DEGREES (0.051 RADIANS)

A4-2.72

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

FIGURE N-58 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX O**

## **S-3A AIRCRAFT NIGHT CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**



Appendix O:

Frequency and Probability Distributions,  
S-3A Aircraft, Night Landings

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MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -31.79 KNOTS (16.35 METRES/SEC)

A3-0.01

S- 2.04 KNOTS (1.05 METRES/SEC)

A4-1.98

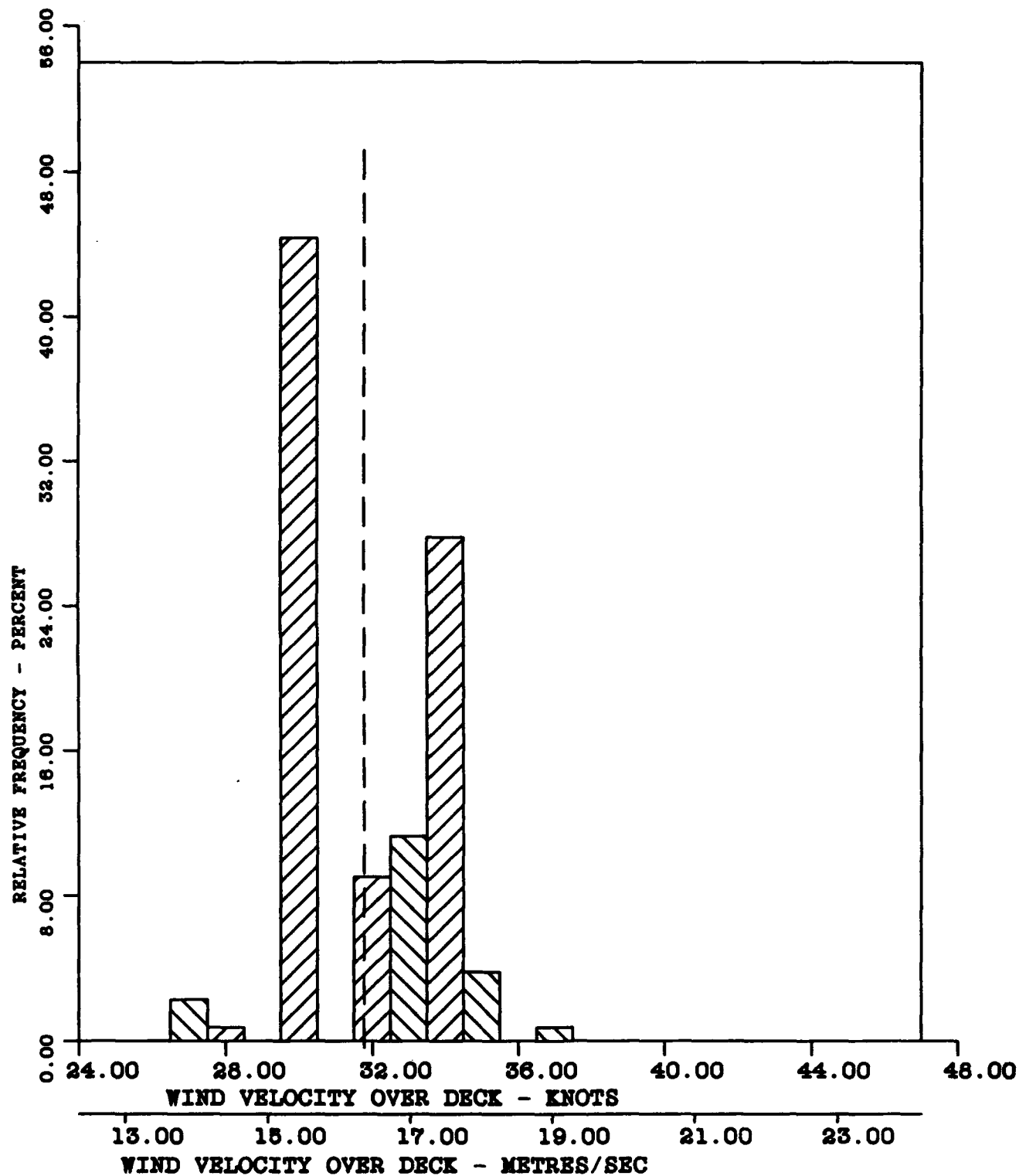


FIGURE O-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -31.79 KNOTS (16.35 METRES/SEC)

A3-0.01

S- 2.04 KNOTS (1.05 METRES/SEC)

A4-1.98

CURVE FITTED - NORMAL

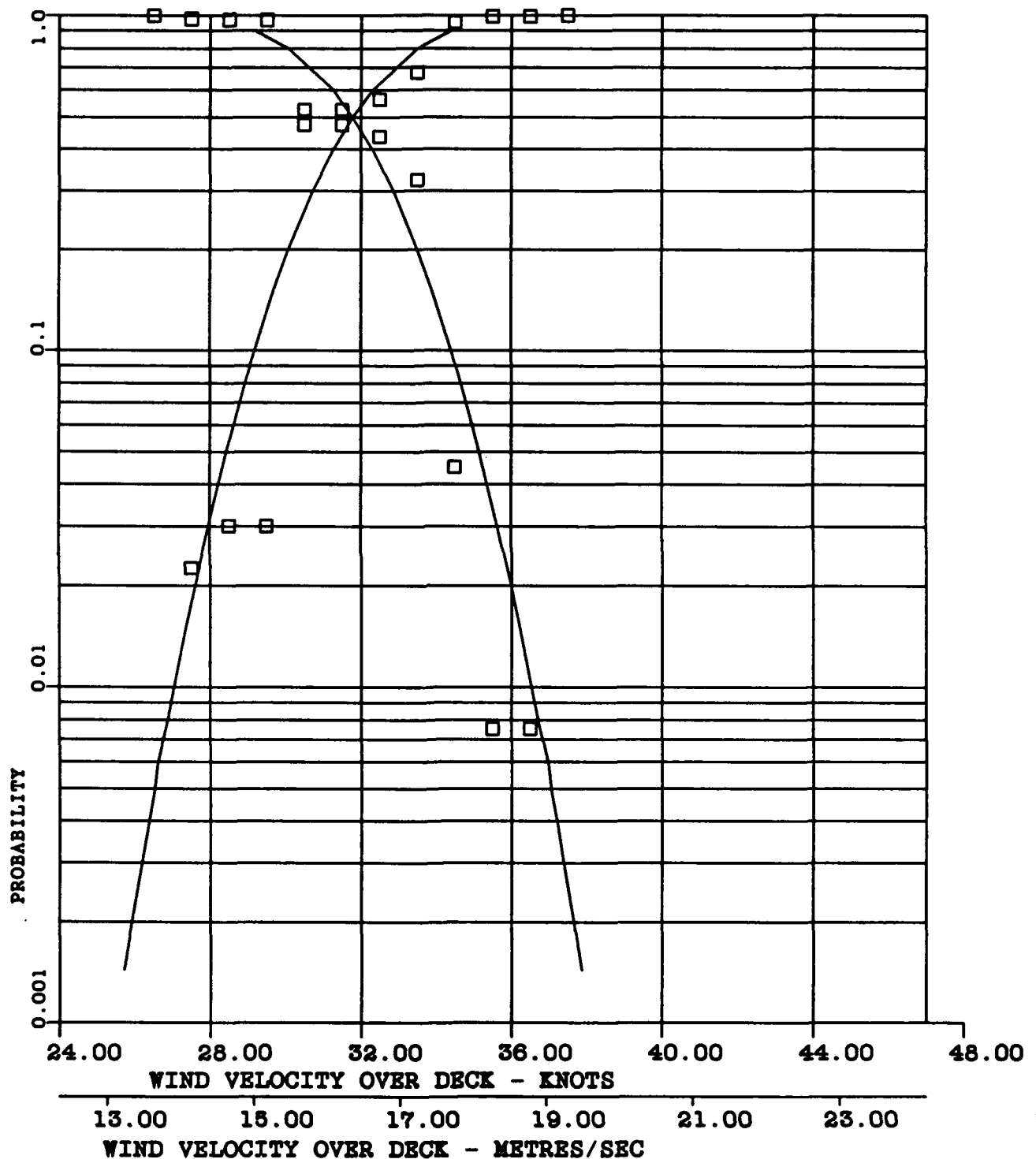


FIGURE O-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -122.38 KNOTS (62.95 METRES/SEC)

A3--0.38

S- 5.64 KNOTS (2.90 METRES/SEC)

A4-4.99

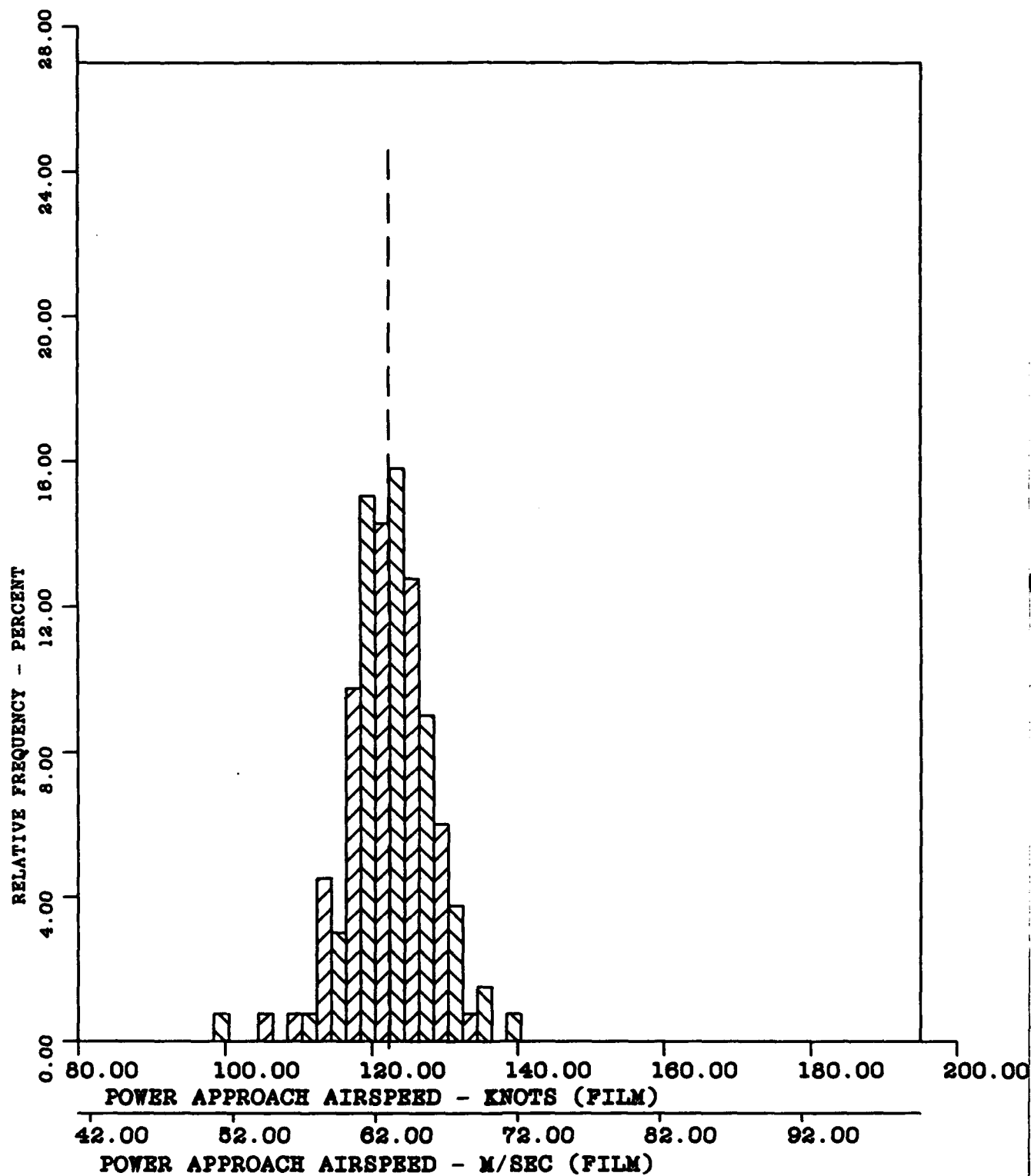


FIGURE O-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -122.38 KNOTS (62.95 METRES/SEC)

A3--0.38

S- 5.64 KNOTS (2.90 METRES/SEC)

A4-4.99

CURVE FITTED - NORMAL

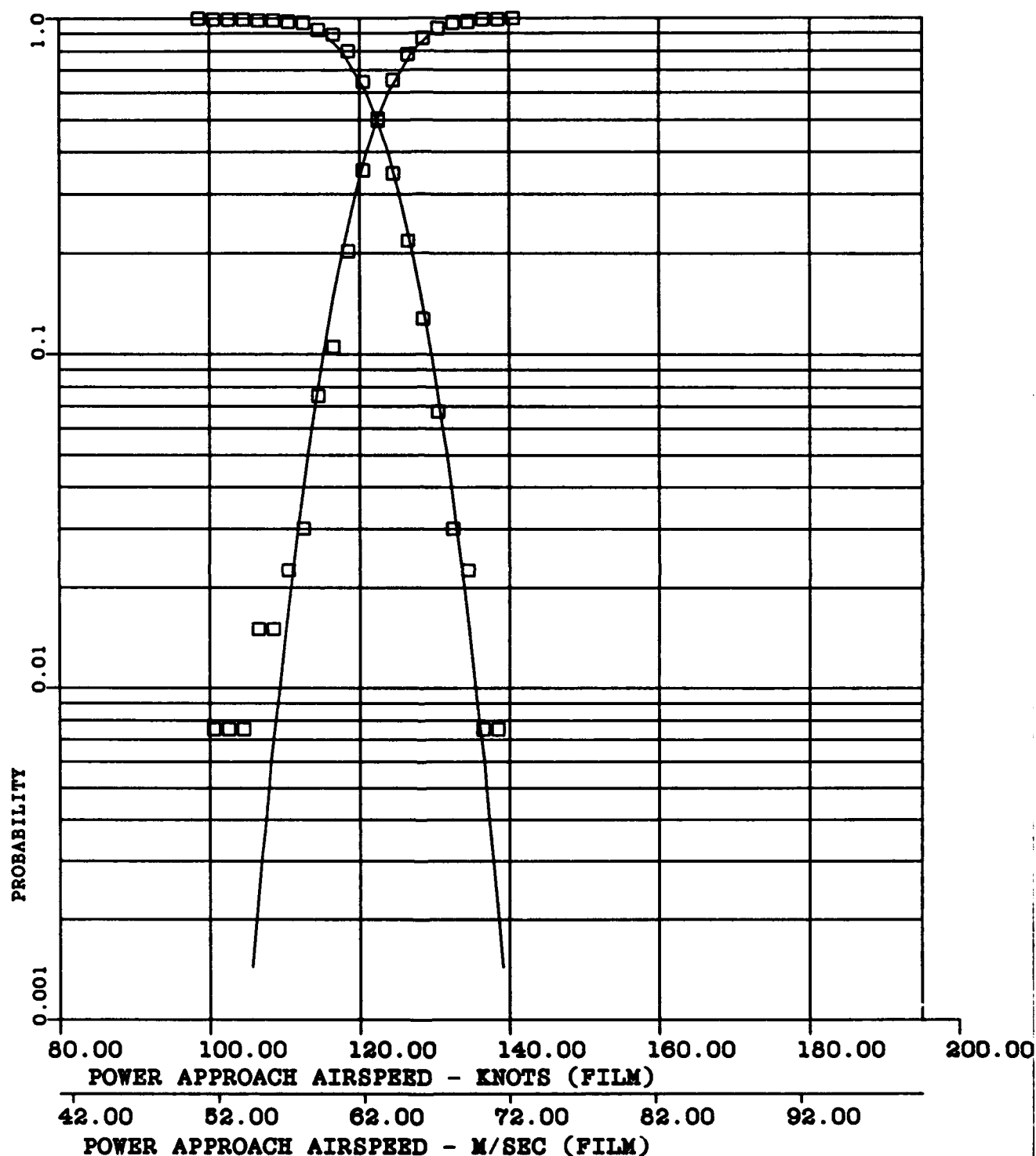


FIGURE O-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -8.18 FEET/SEC (2.49 METRES/SEC)

A3--0.08

S- 1.80 FEET/SEC (0.55 METRES/SEC)

A4-2.63

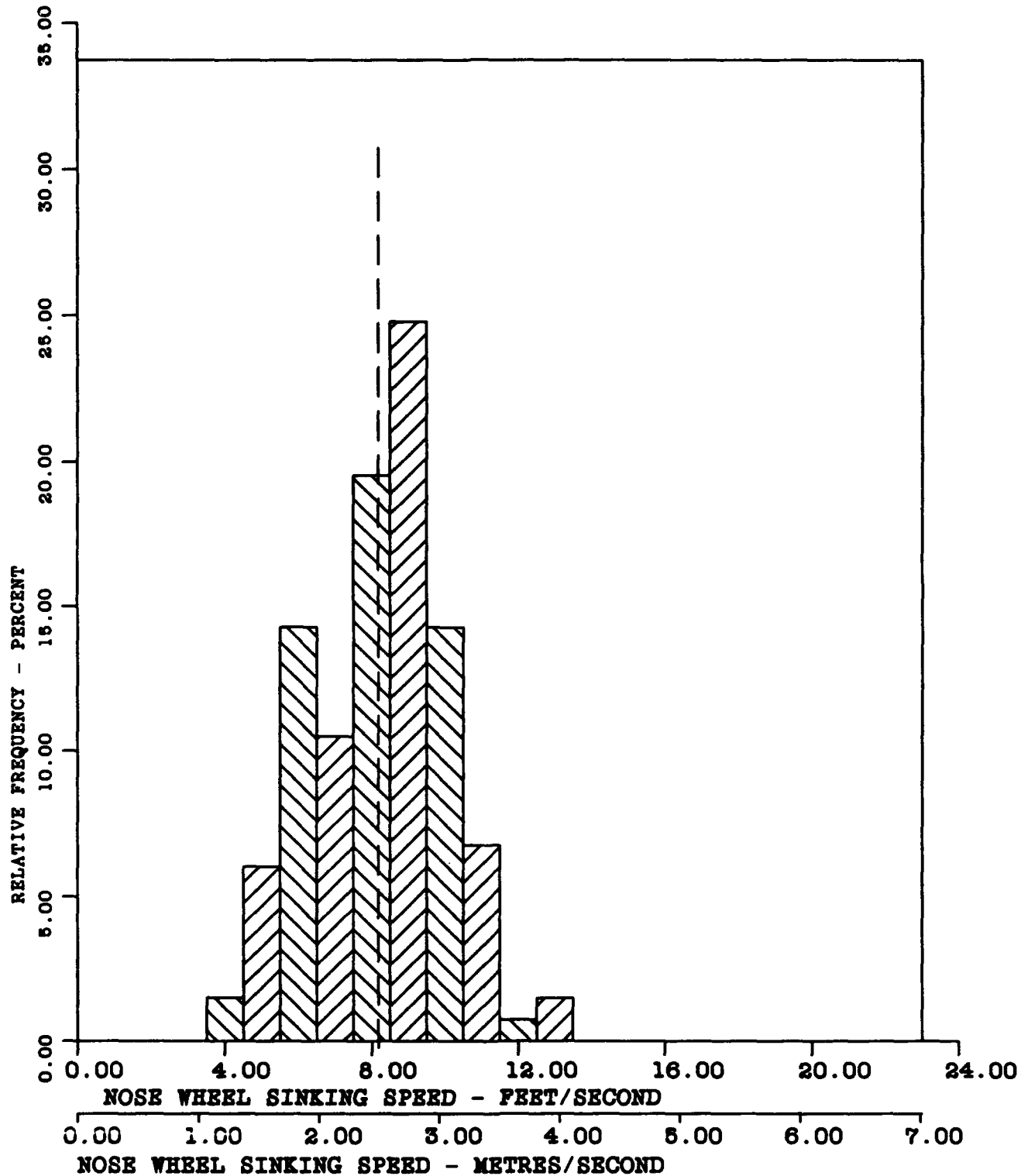


FIGURE O-5 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -8.18 FEET/SEC (2.49 METRES/SEC)

A3--0.08

S- 1.80 FEET/SEC (0.55 METRES/SEC)

A4-2.63

CURVE FITTED - NORMAL

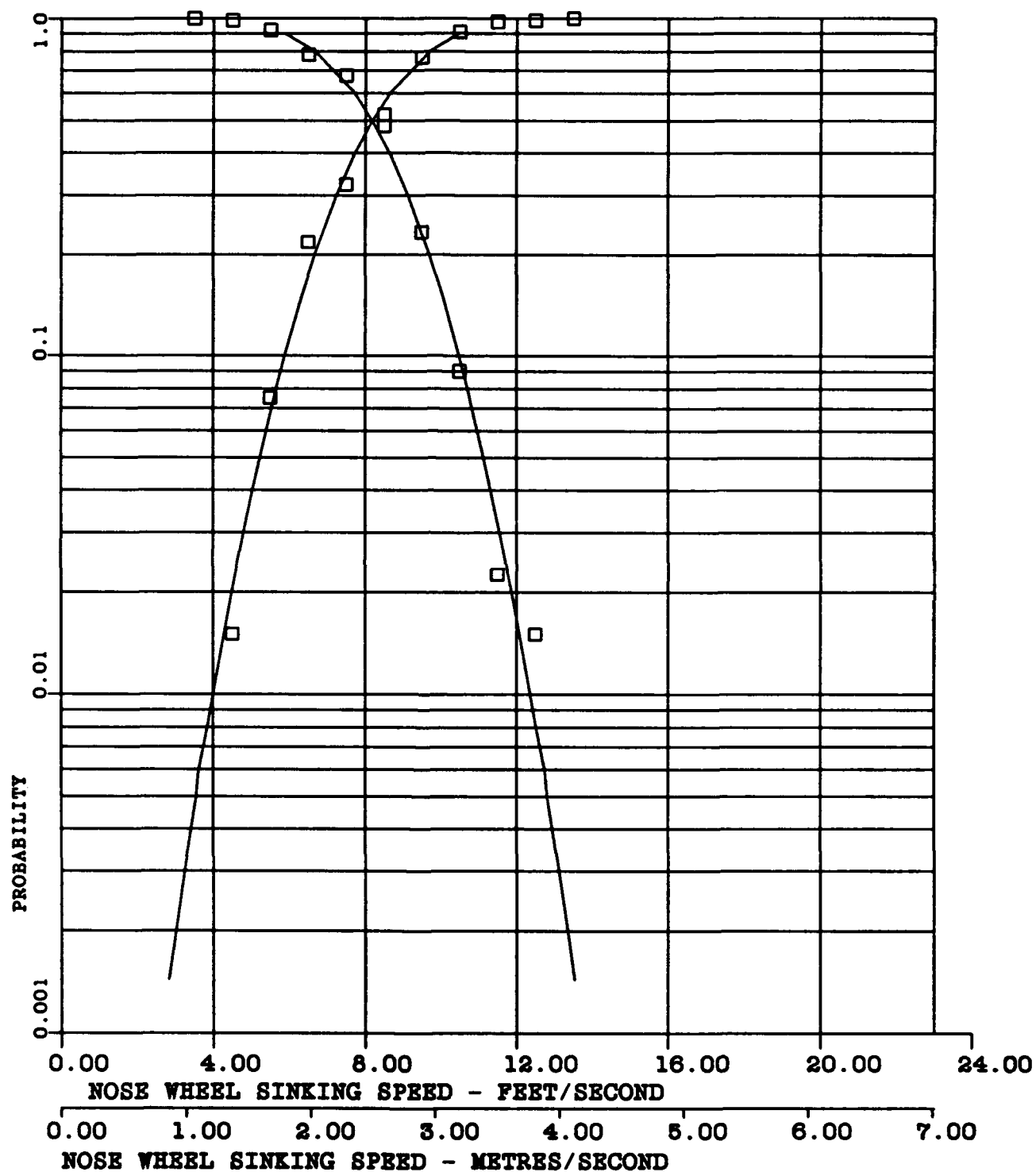


FIGURE O-6 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL S-3A AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -8.61 FEET/SEC (2.63 METRES/SEC)

A3--0.06

S- 1.97 FEET/SEC (0.60 METRES/SEC)

A4-3.16

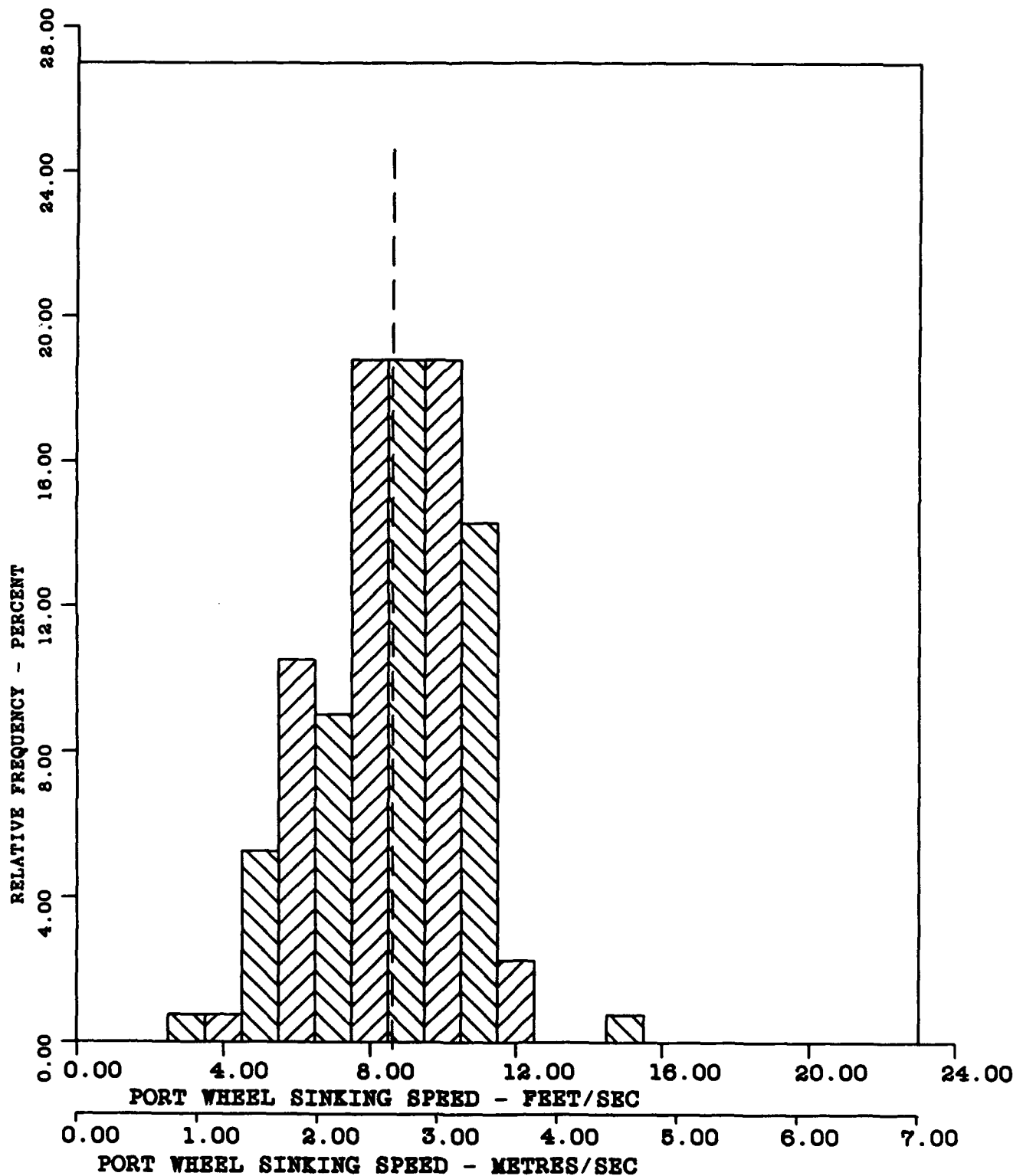


FIGURE O-7 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -8.61 FEET/SEC (2.63 METRES/SEC)

A3--0.06

S- 1.97 FEET/SEC (0.60 METRES/SEC)

A4-3.16

CURVE FITTED - NORMAL

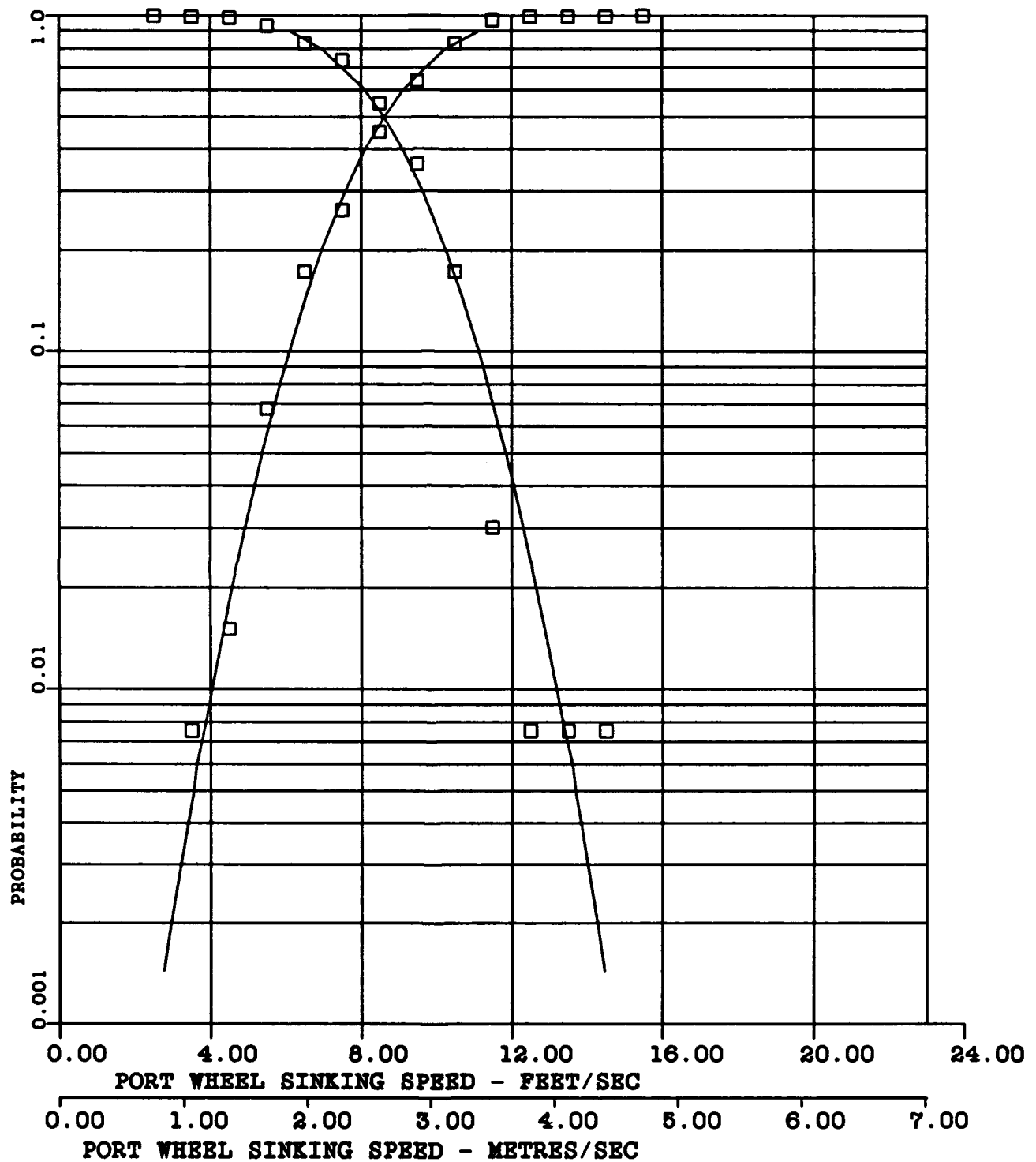


FIGURE O-8 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIAN)

N-133

 $\bar{X}$ -8.41 FEET/SEC (2.56 METRES/SEC)

A3-0.02

S- 2.20 FEET/SEC (0.67 METRES/SEC)

A4-2.54

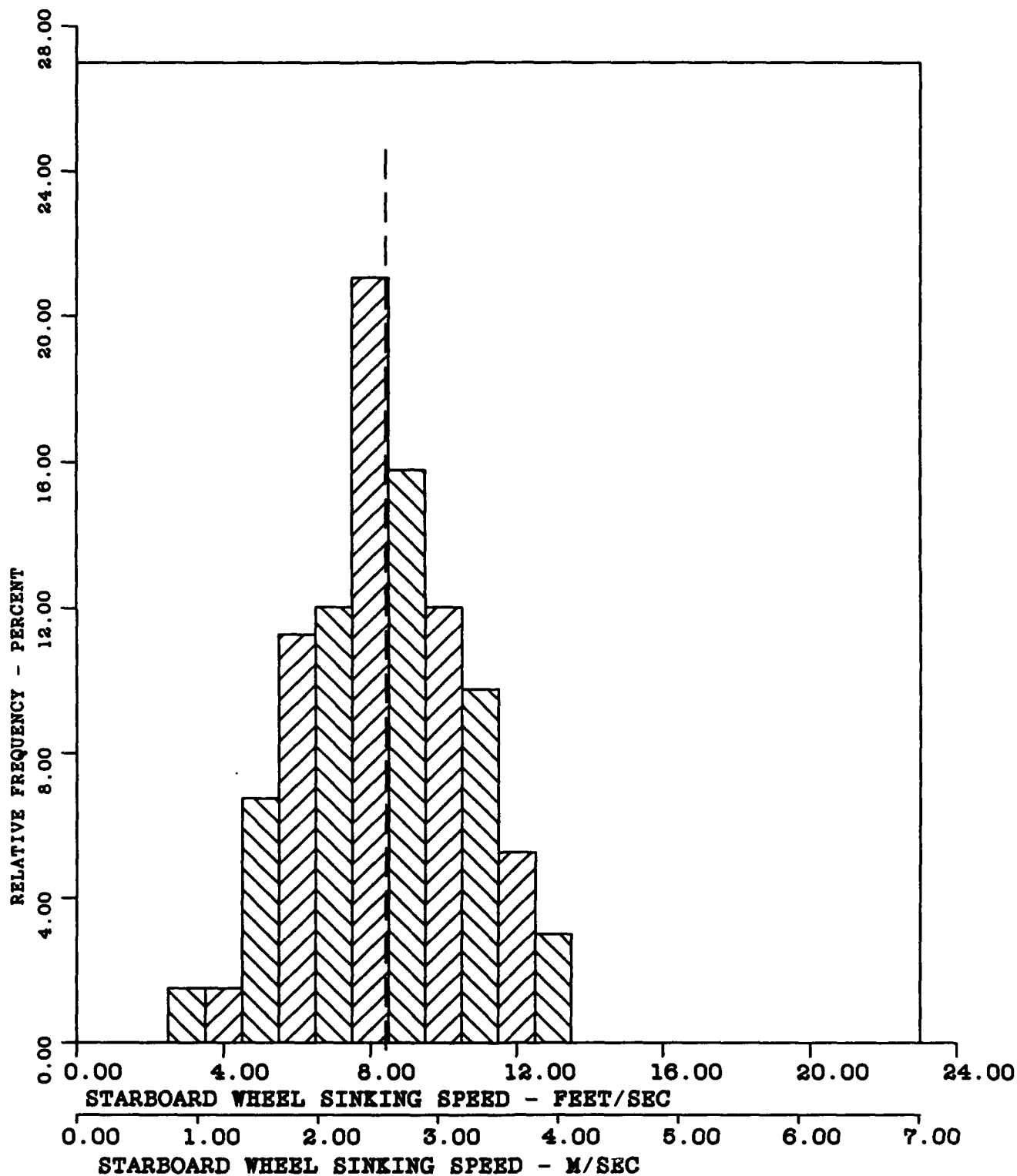


FIGURE O-9 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -8.41 FEET/SEC (2.56 METRES/SEC)

A3-0.02

S- 2.20 FEET/SEC (0.67 METRES/SEC)

A4-2.54

CURVE FITTED - NORMAL

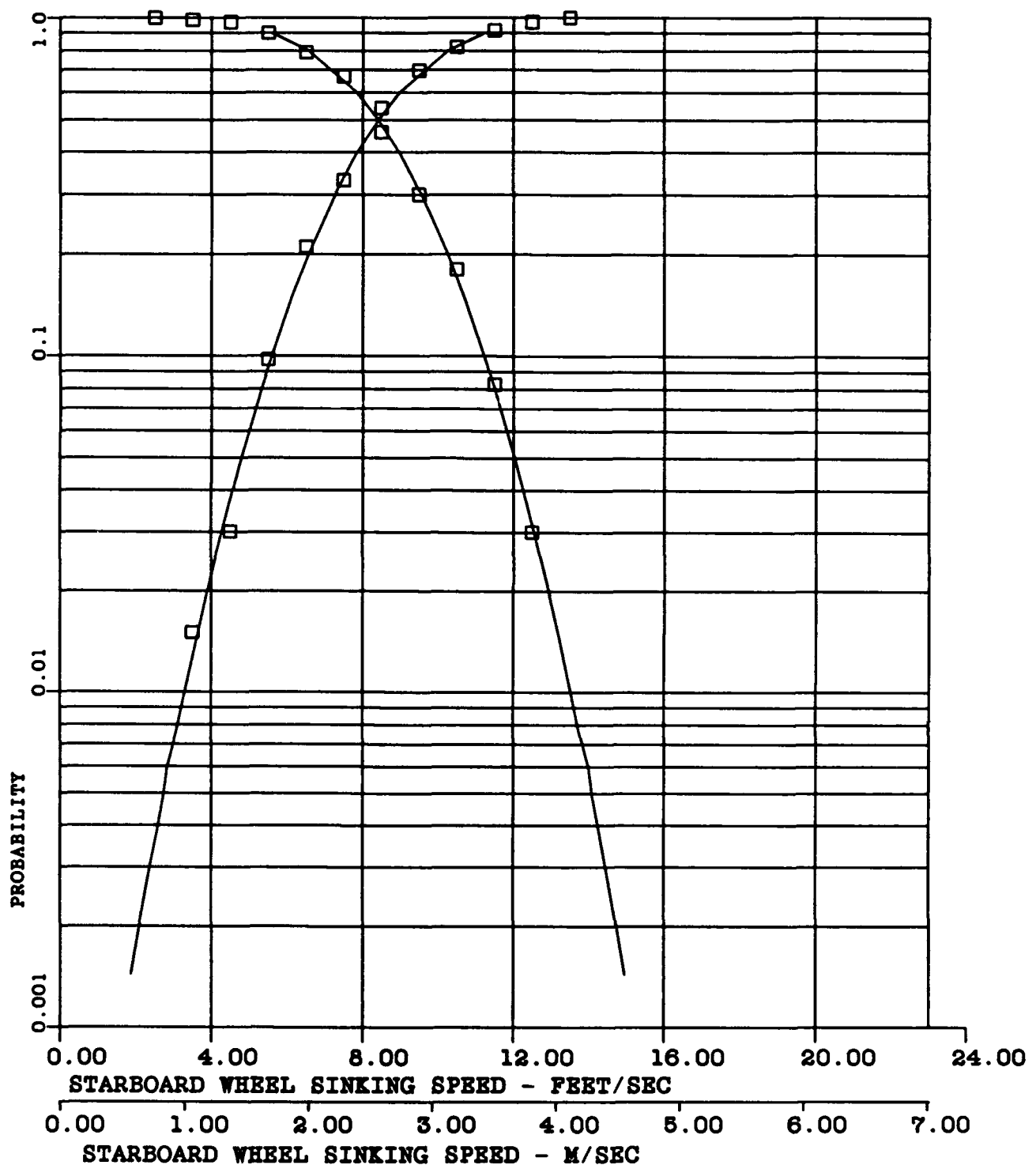


FIGURE O-10 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -8.57 FEET/SEC (2.61 METRES/SEC)

A3--0.13

S- 1.92 FEET/SEC (0.59 METRES/SEC)

A4-2.66

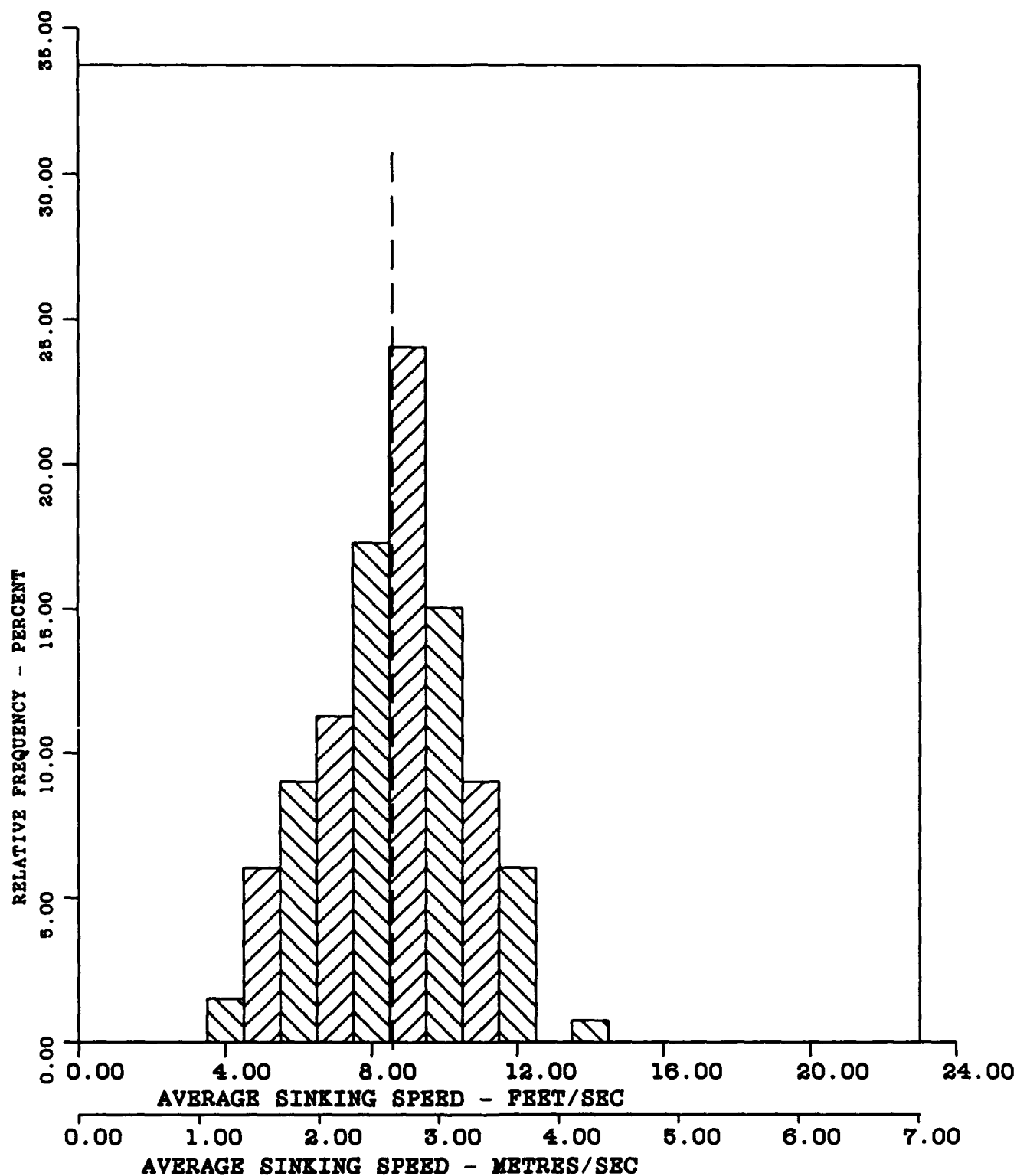


FIGURE O-11 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -8.57 FEET/SEC (2.61 METRES/SEC)

A3--0.13

S- 1.92 FEET/SEC (0.59 METRES/SEC)

A4-2.66

CURVE FITTED - NORMAL

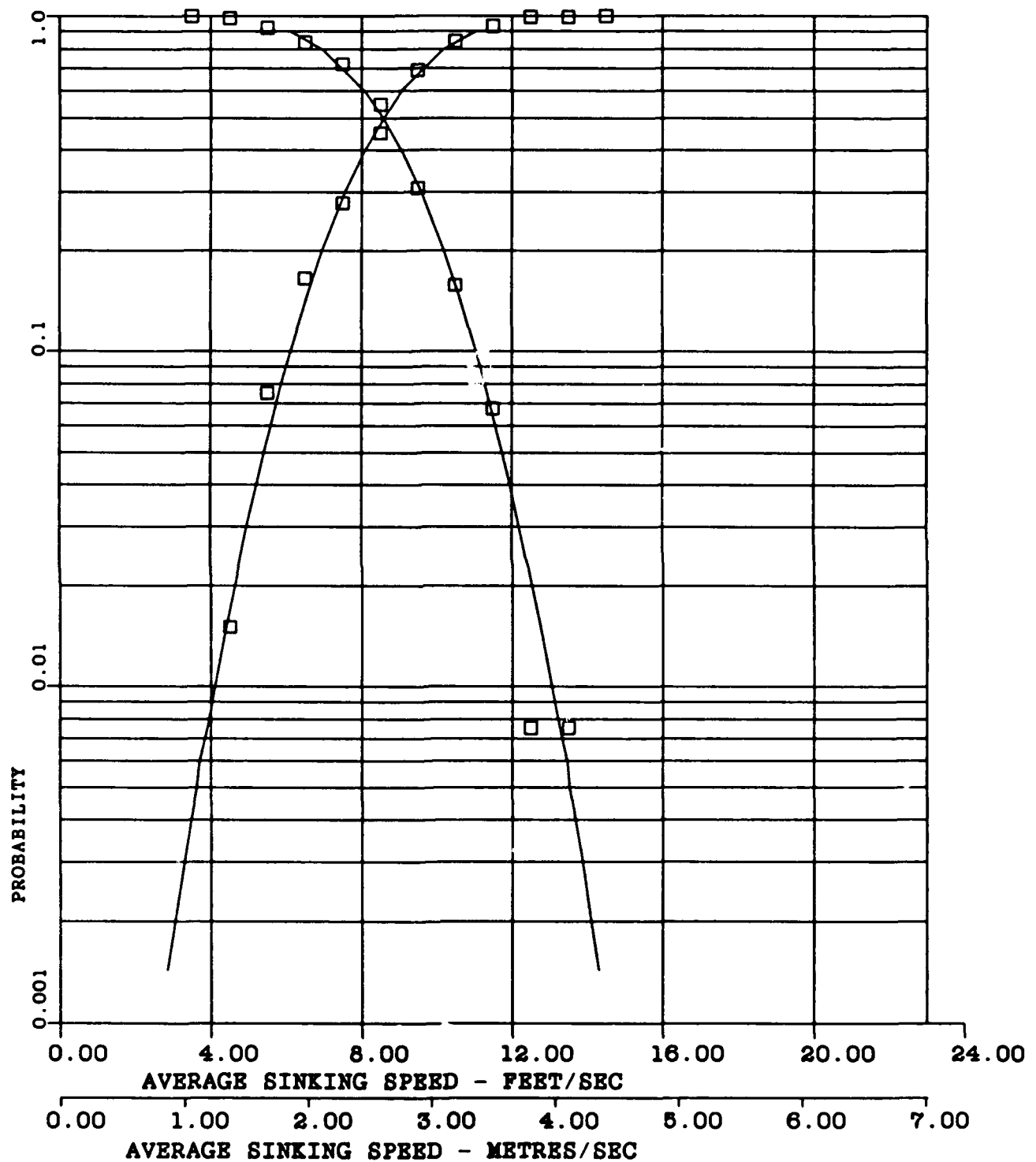


FIGURE O-12 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=7

 $\bar{X}$ =7.66 FEET/SEC (2.34 METRES/SEC)

A3=-0.59

S= 2.23 FEET/SEC (0.68 METRES/SEC)

A4=2.06

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

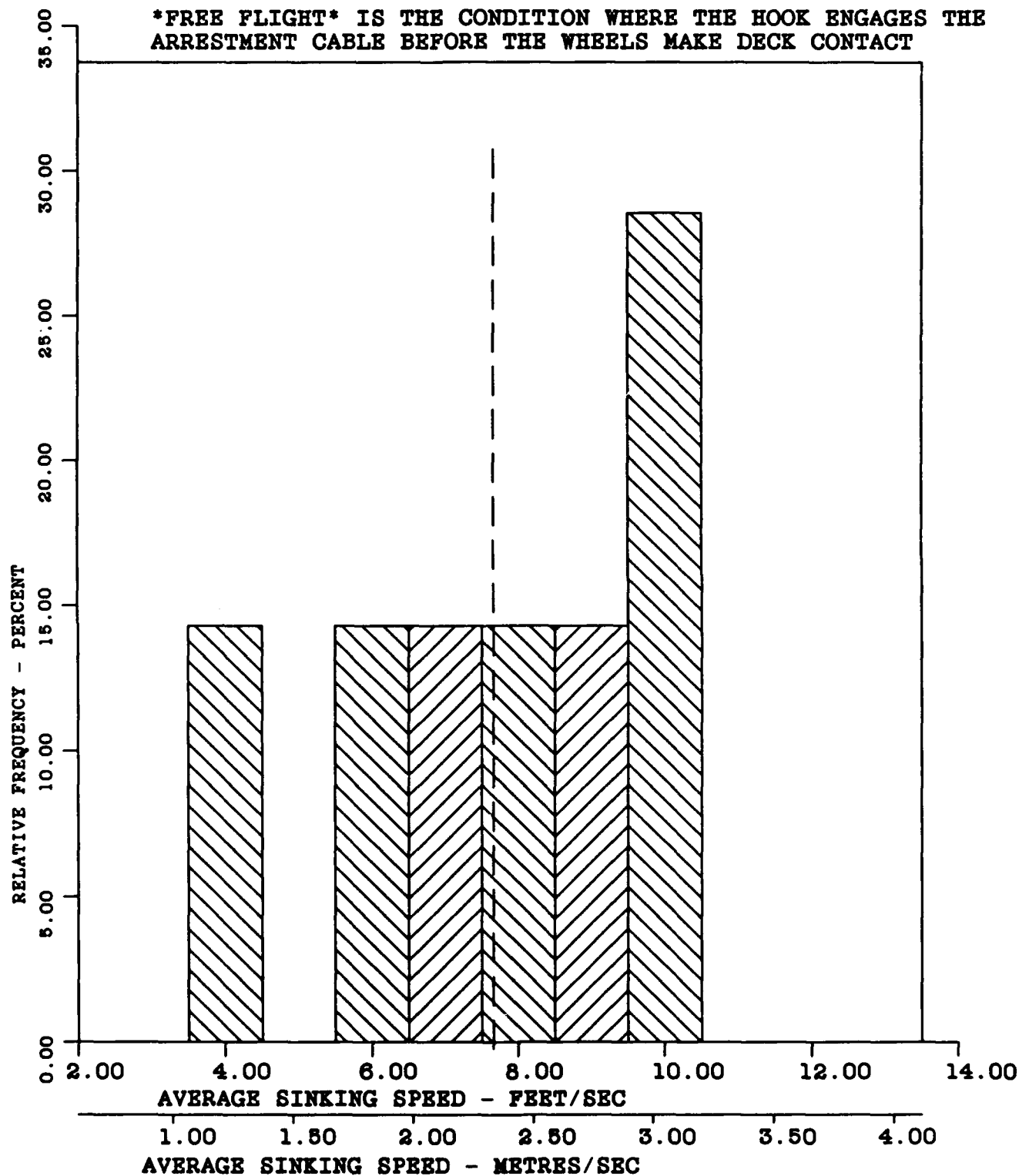


FIGURE O-13 FREQUENCY DISTRIBUTION OF AVERAGE SINKING  
SPEED OF MAIN WHEELS AT FREE FLIGHT



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-7

 $\bar{X}$ -7.66 FEET/SEC (2.34 METRES/SEC)

A3--0.59

S- 2.23 FEET/SEC (0.68 METRES/SEC)

A4-2.06

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

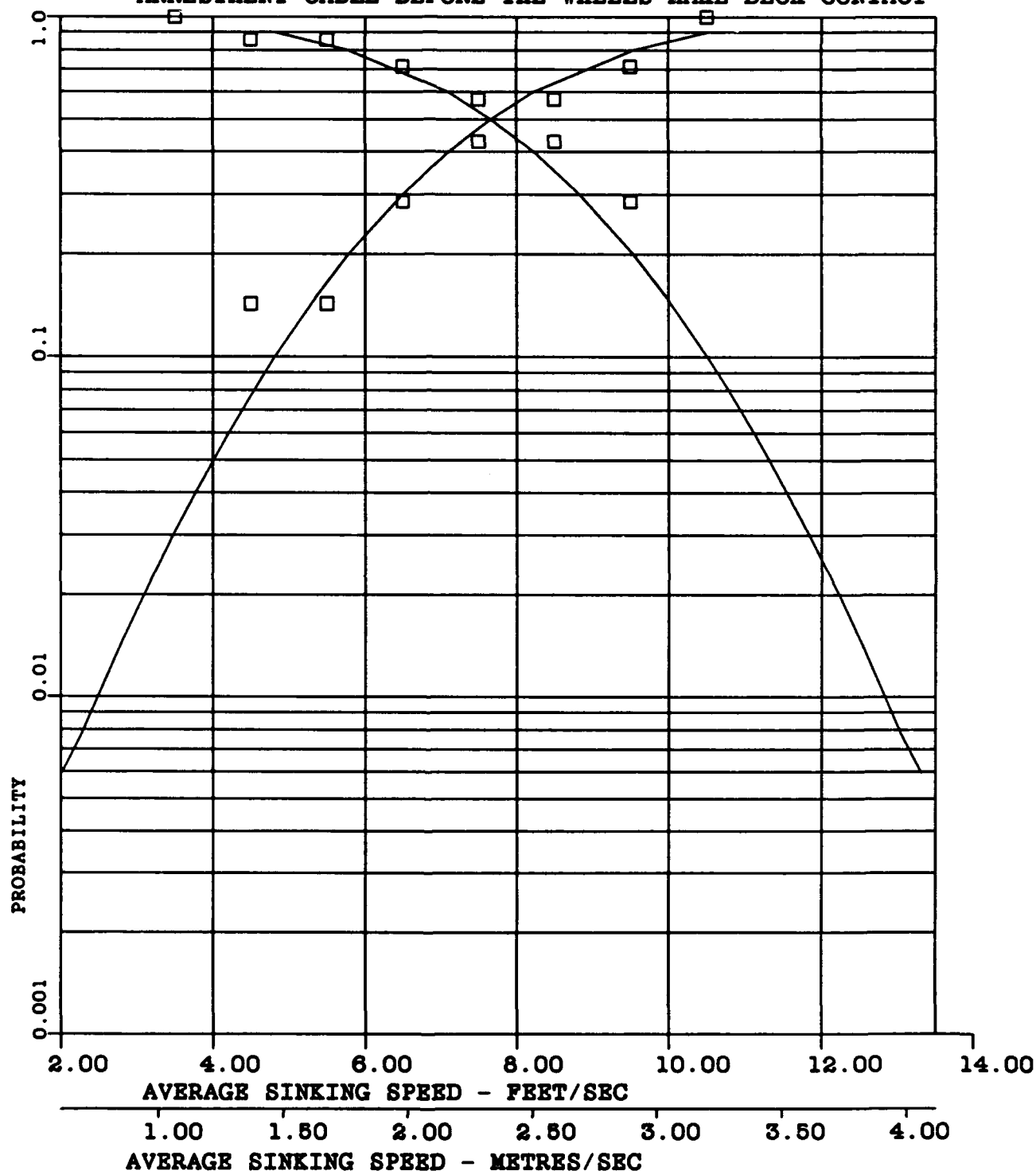


FIGURE O-14 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -1.03

S- 0.09

A3--0.06

A4-3.97

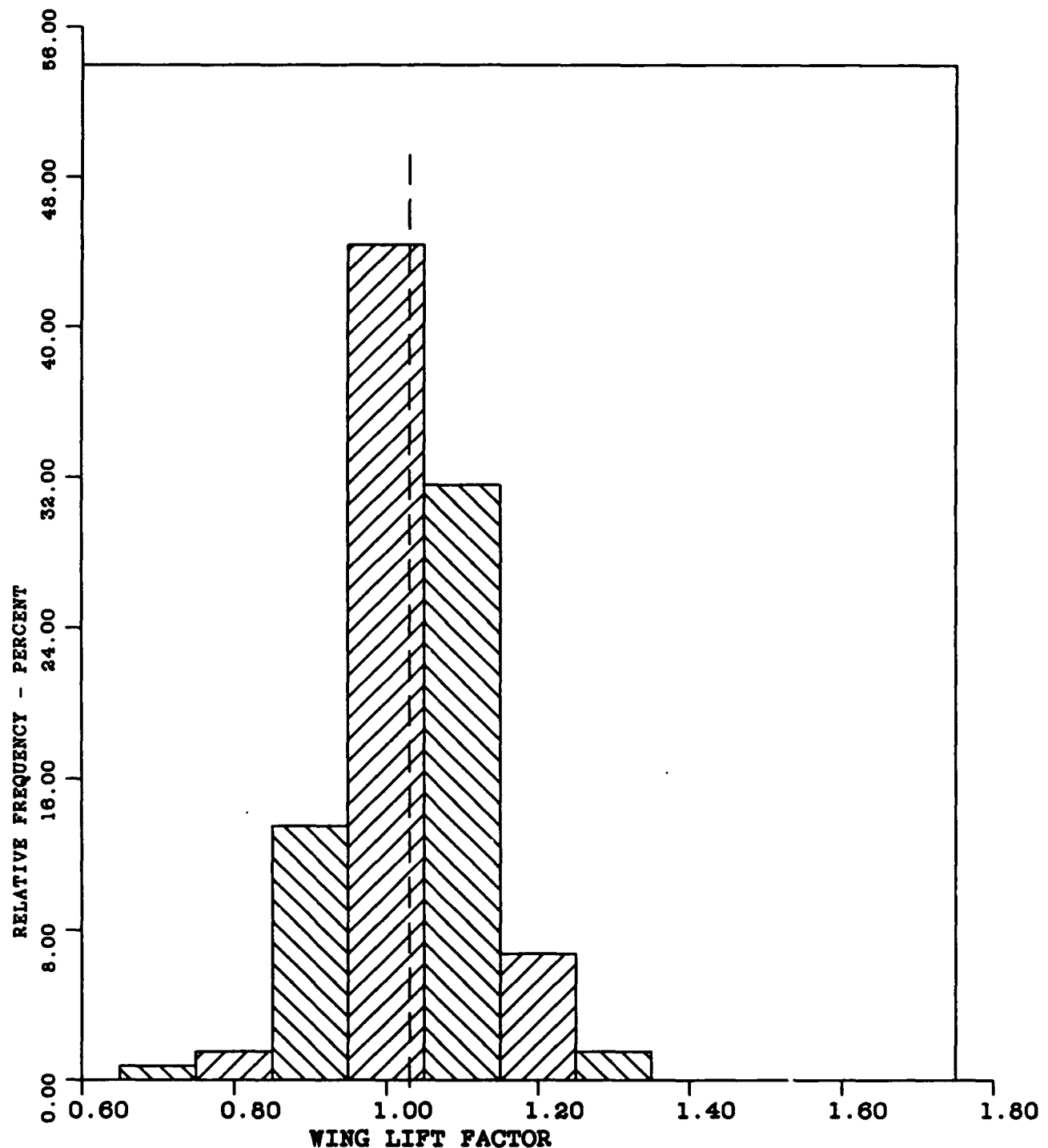


FIGURE O-15 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -1.03

S= 0.09

CURVE FITTED - NORMAL

A3--0.06

A4-3.97

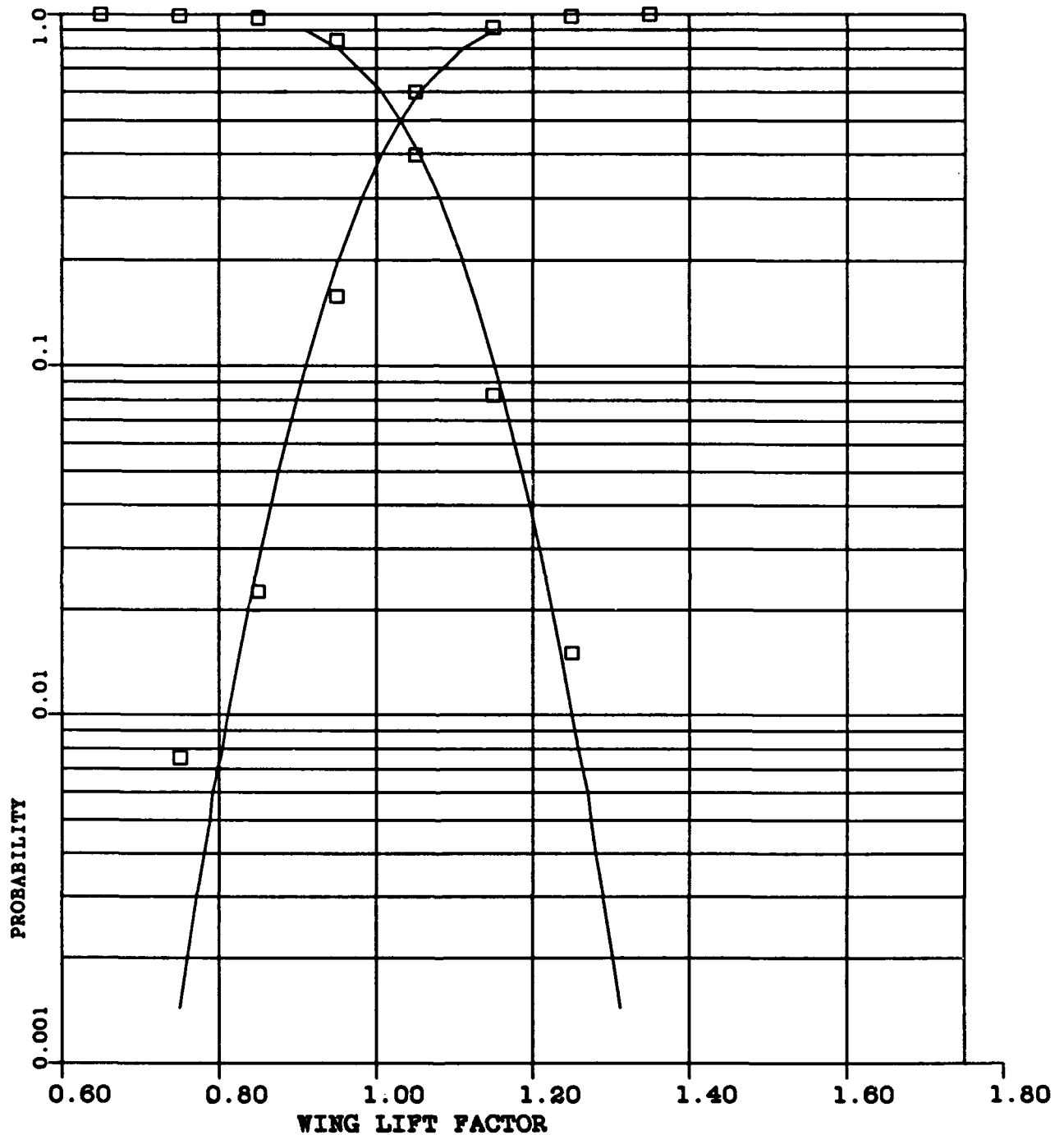


FIGURE O-16 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-7

 $\bar{X}$ -1.03

A3-0.95

S- 0.05

A4-1.90

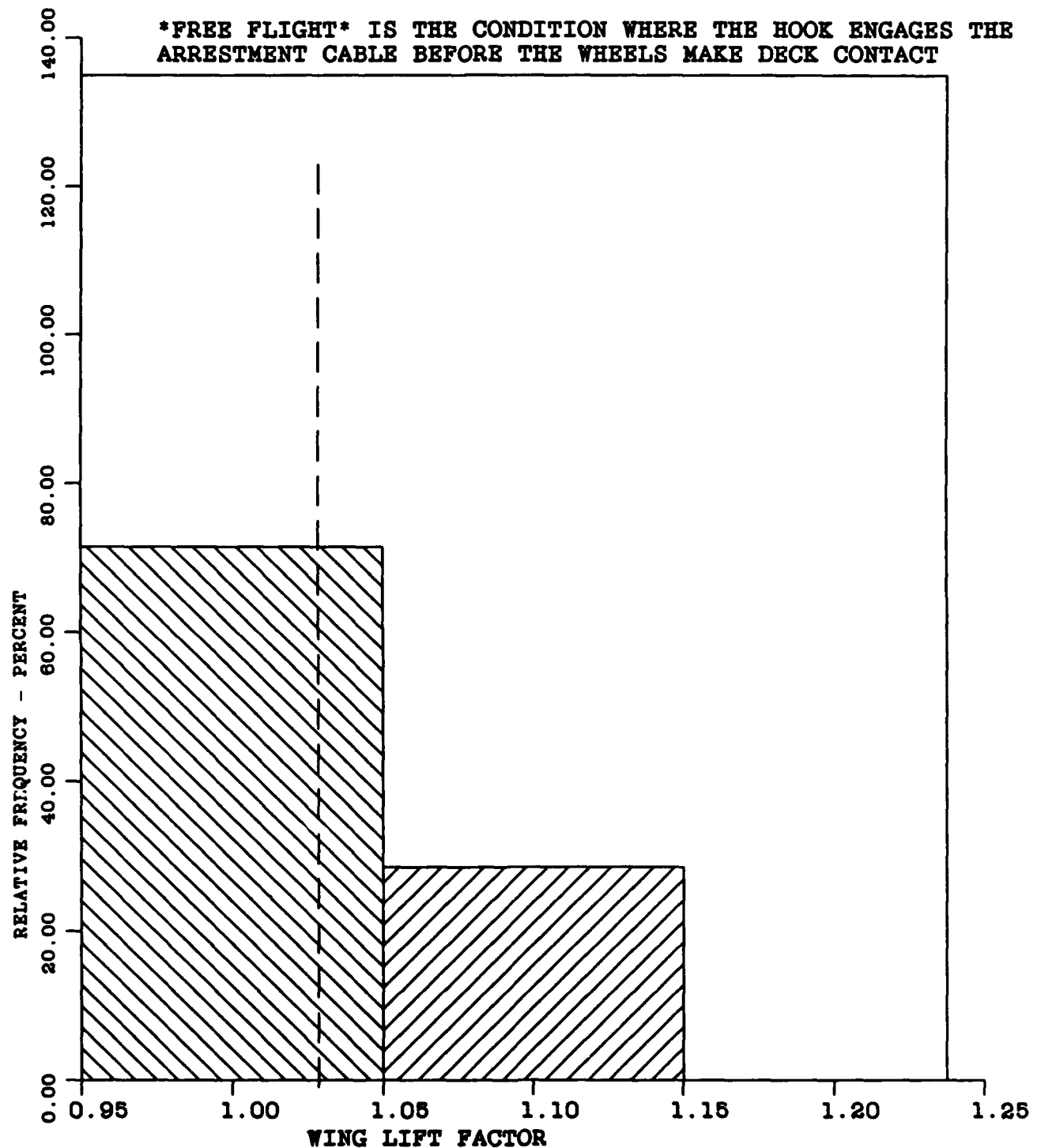


FIGURE O-17 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N=7

 $\bar{X}$ -1.03

A3-0.95

S= 0.05

A4-1.90

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

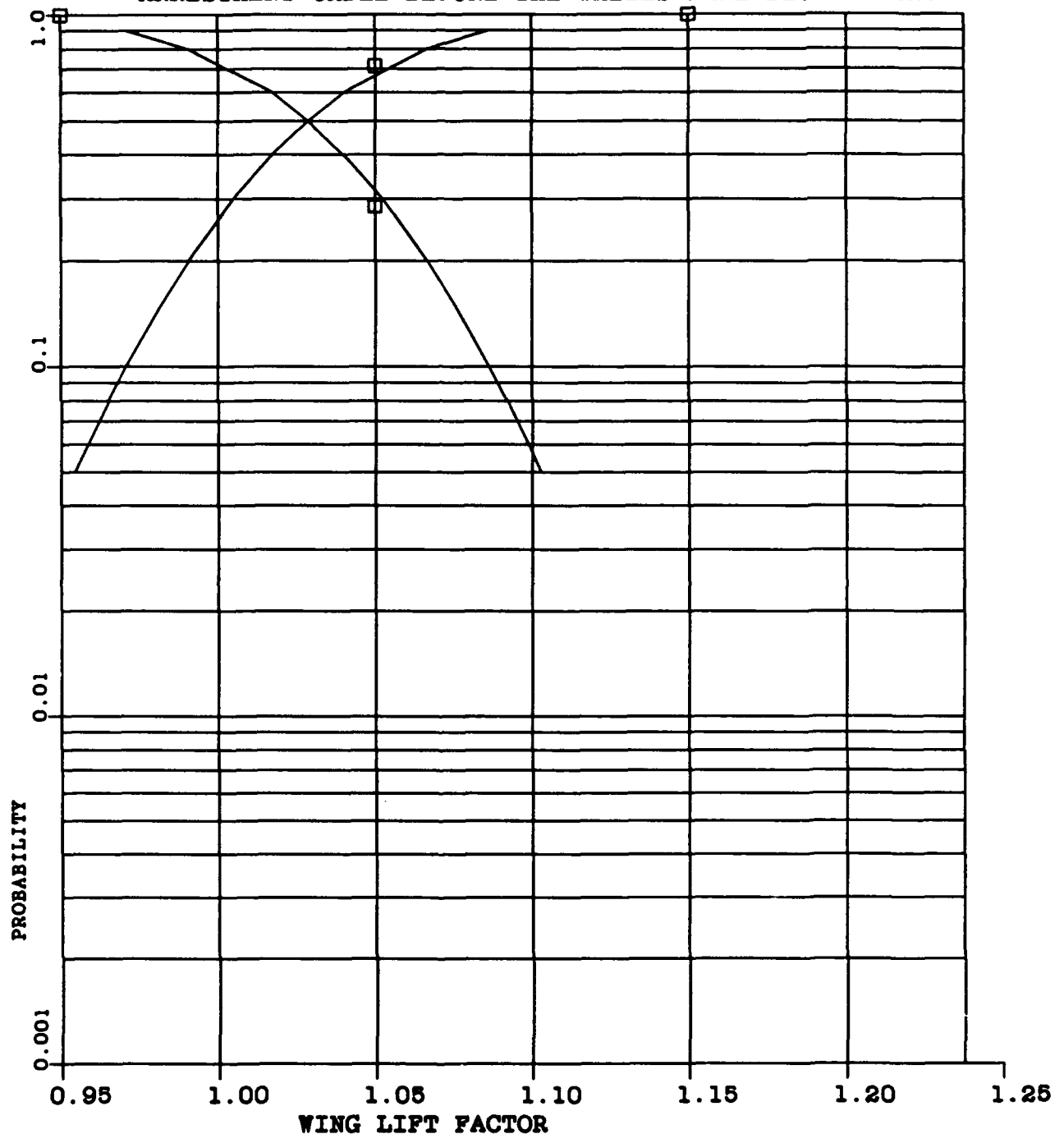


FIGURE O-18 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -4.72 DEGREES (0.082 RADIANS)

A3--0.57

S- 1.23 DEGREES (0.022 RADIANS)

A4=5.40

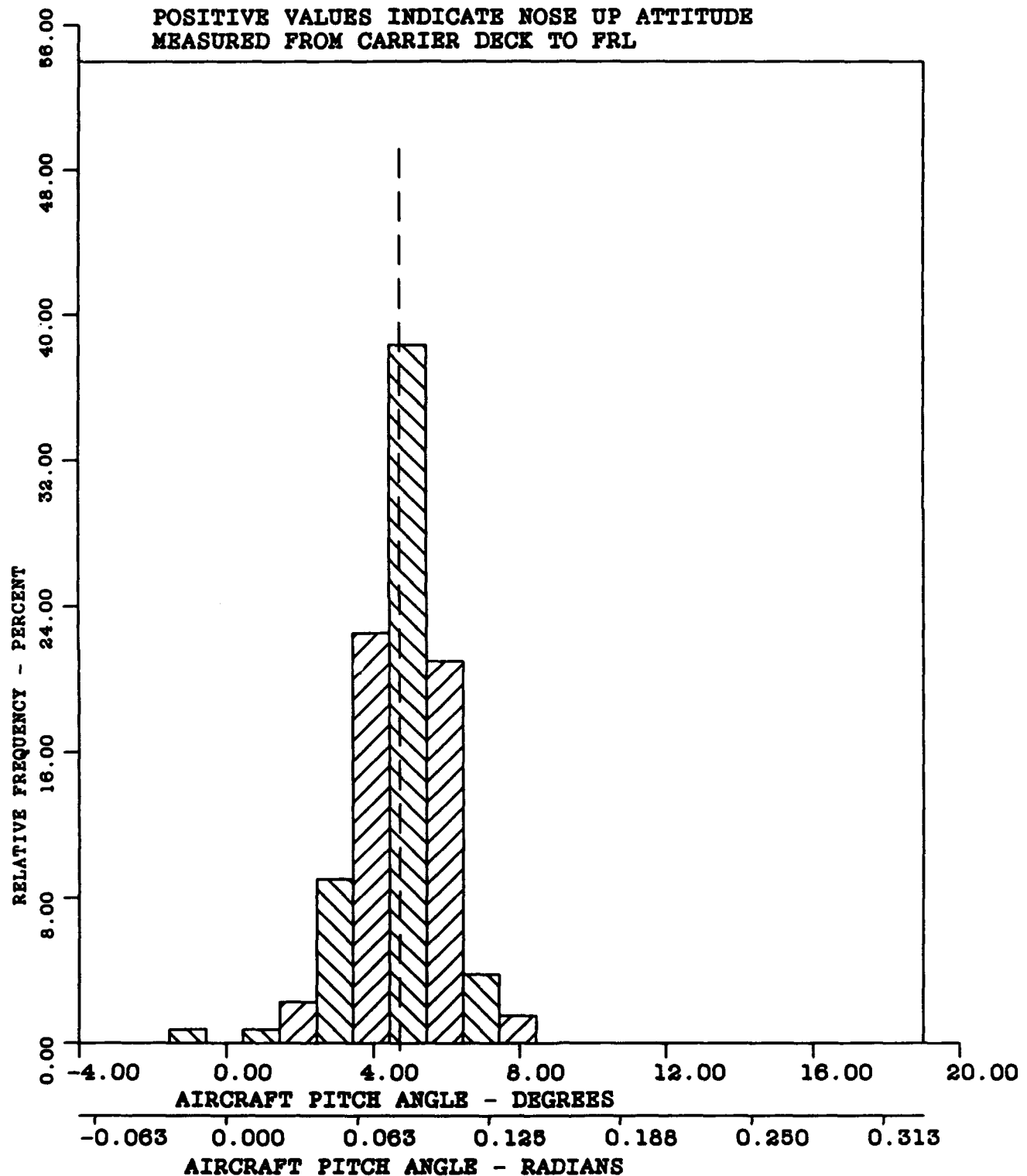


FIGURE O-19 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-66)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -4.72 DEGREES (0.082 RADIANS)

A3--0.57

S- 1.23 DEGREES (0.022 RADIANS)

A4-5.40

CURVE FITTED - PEARSON TYPE III

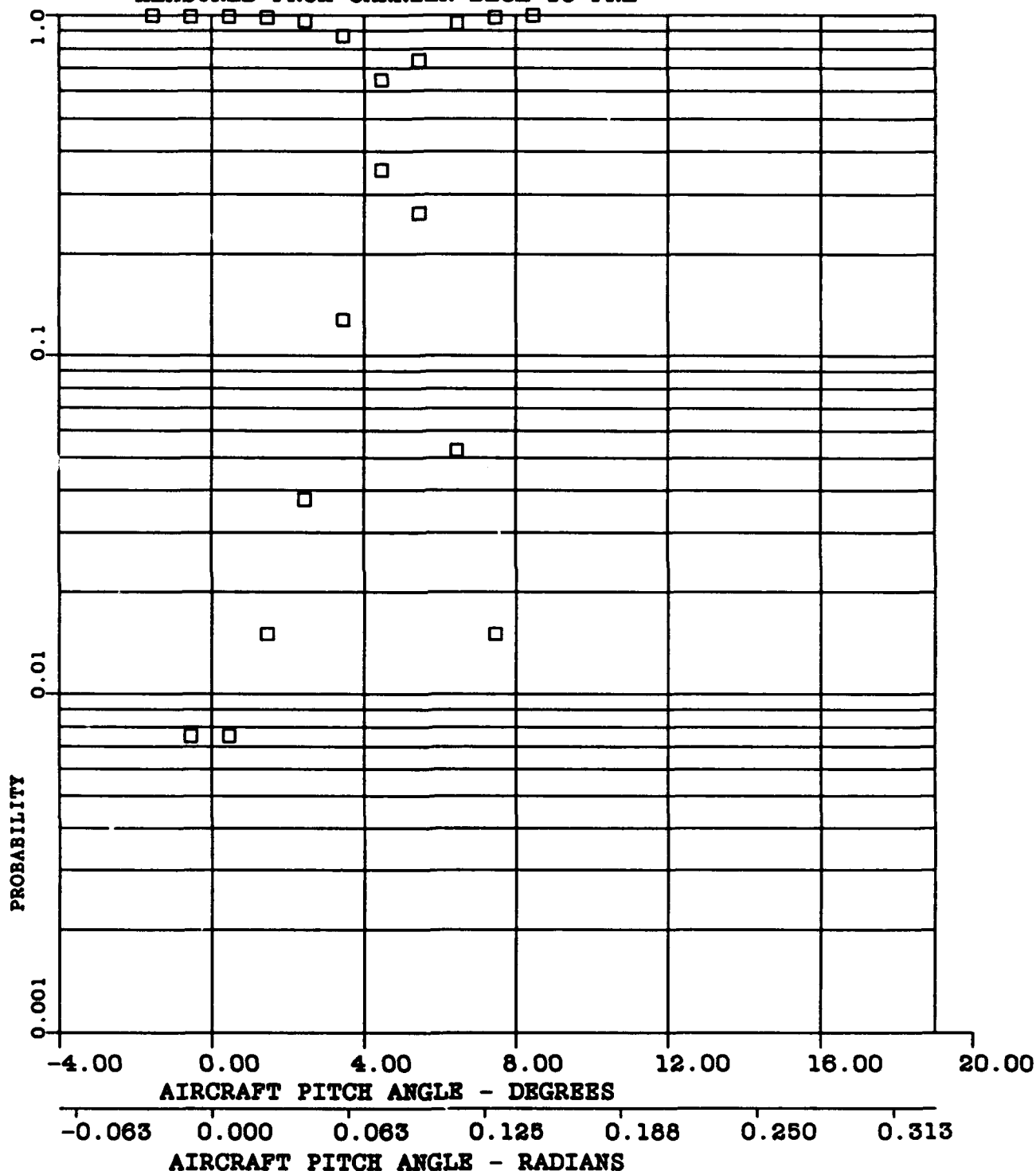
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE O-20 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-7

 $\bar{X}$ -5.09 DEGREES (0.089 RADIANS)

A3-1.27

S- 0.78 DEGREES (0.014 RADIANS)

A4-3.63

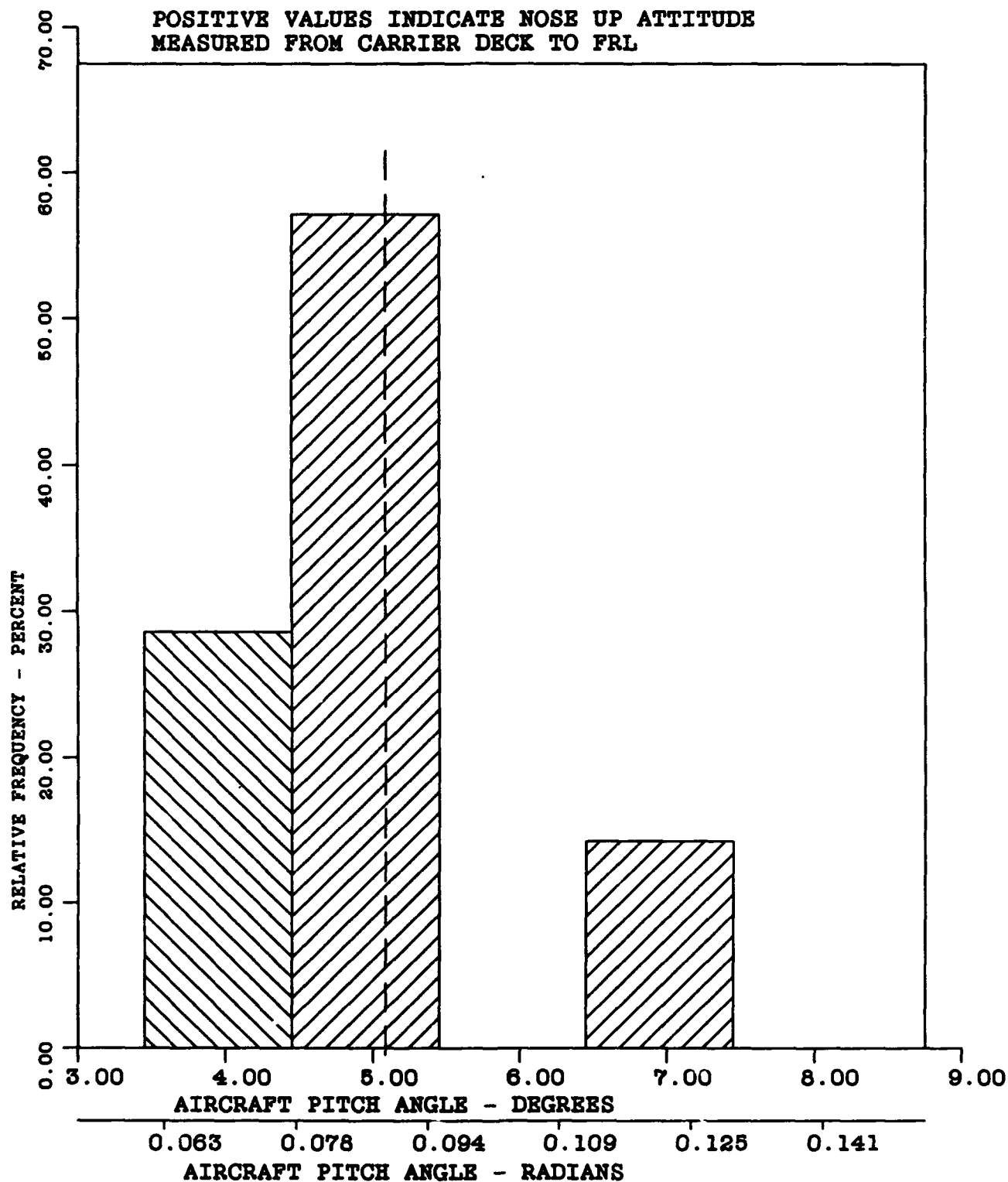


FIGURE O-21 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N=7

 $\bar{X}$ =5.09 DEGREES (0.089 RADIANS)

A3=1.27

S= 0.78 DEGREES (0.014 RADIANS)

A4=3.63

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE

MEASURED FROM CARRIER DECK TO FRL

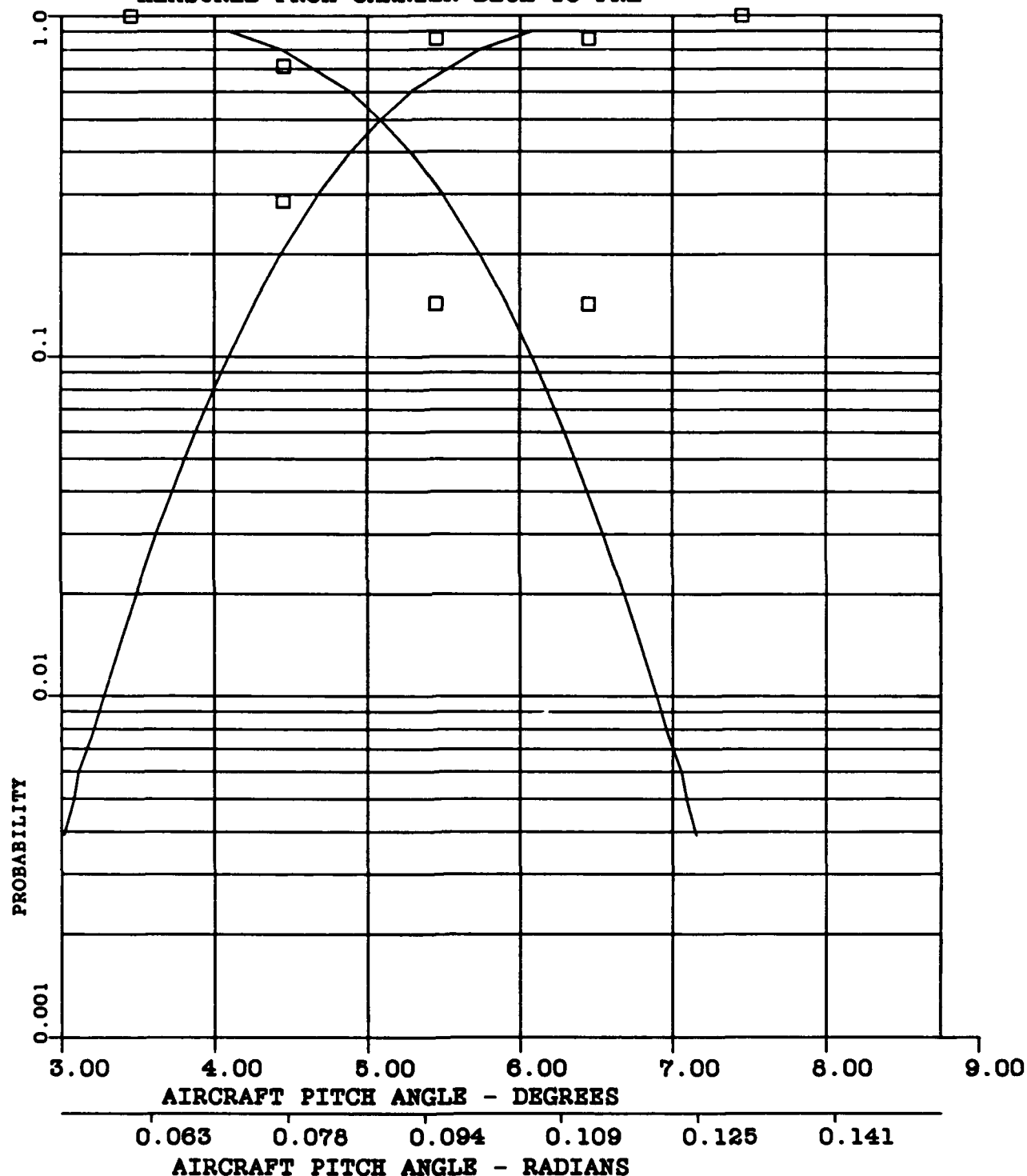


FIGURE O-22 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -1.01 DEGREES (-0.018 RADIANS)

A3-0.22

S- 2.23 DEGREES (0.039 RADIANS)

A4-3.43

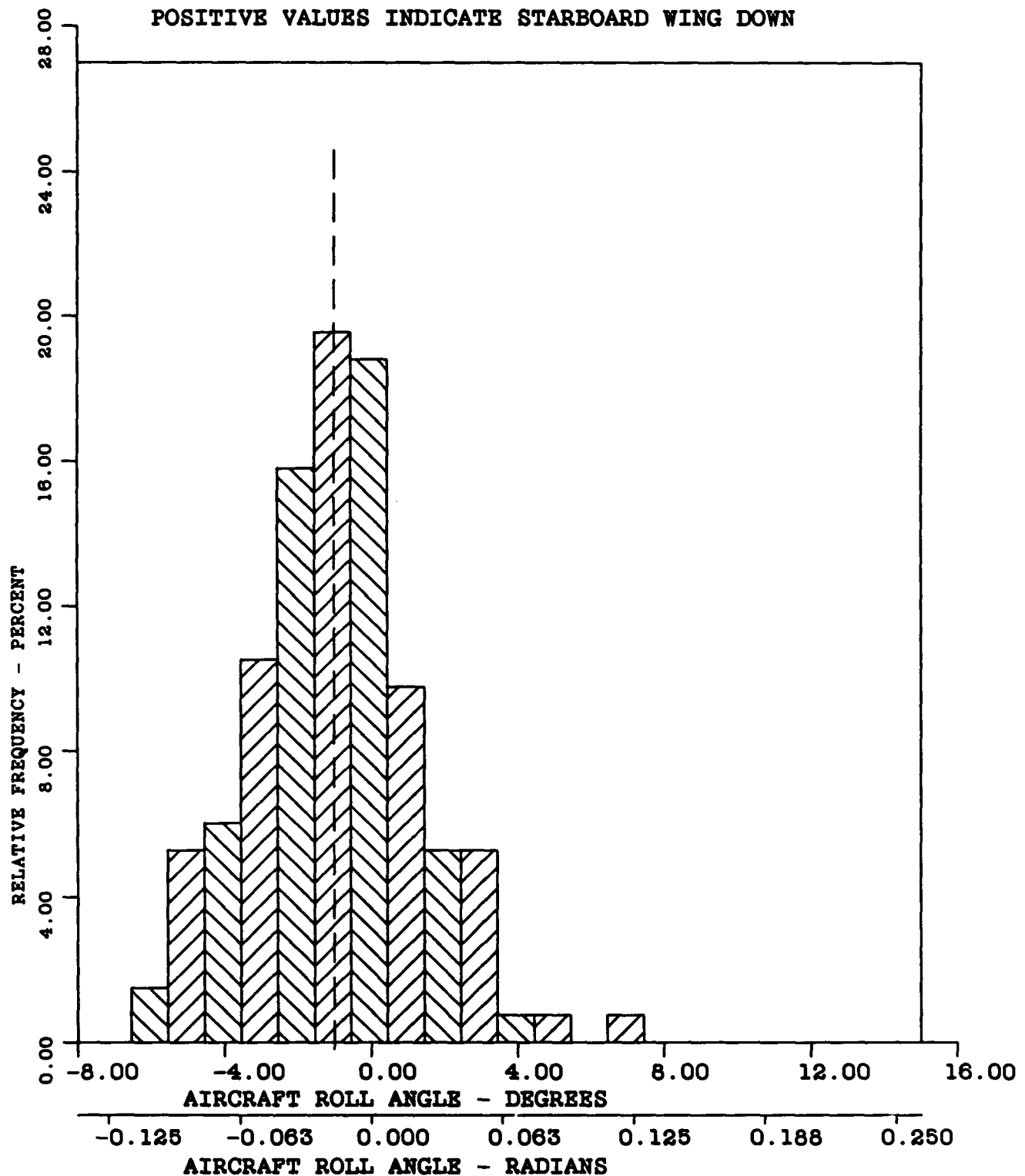


FIGURE O-23 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ --1.01 DEGREES (-0.018 RADIANS)

A3-0.22

S= 2.23 DEGREES (0.039 RADIANS)

A4-3.43

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

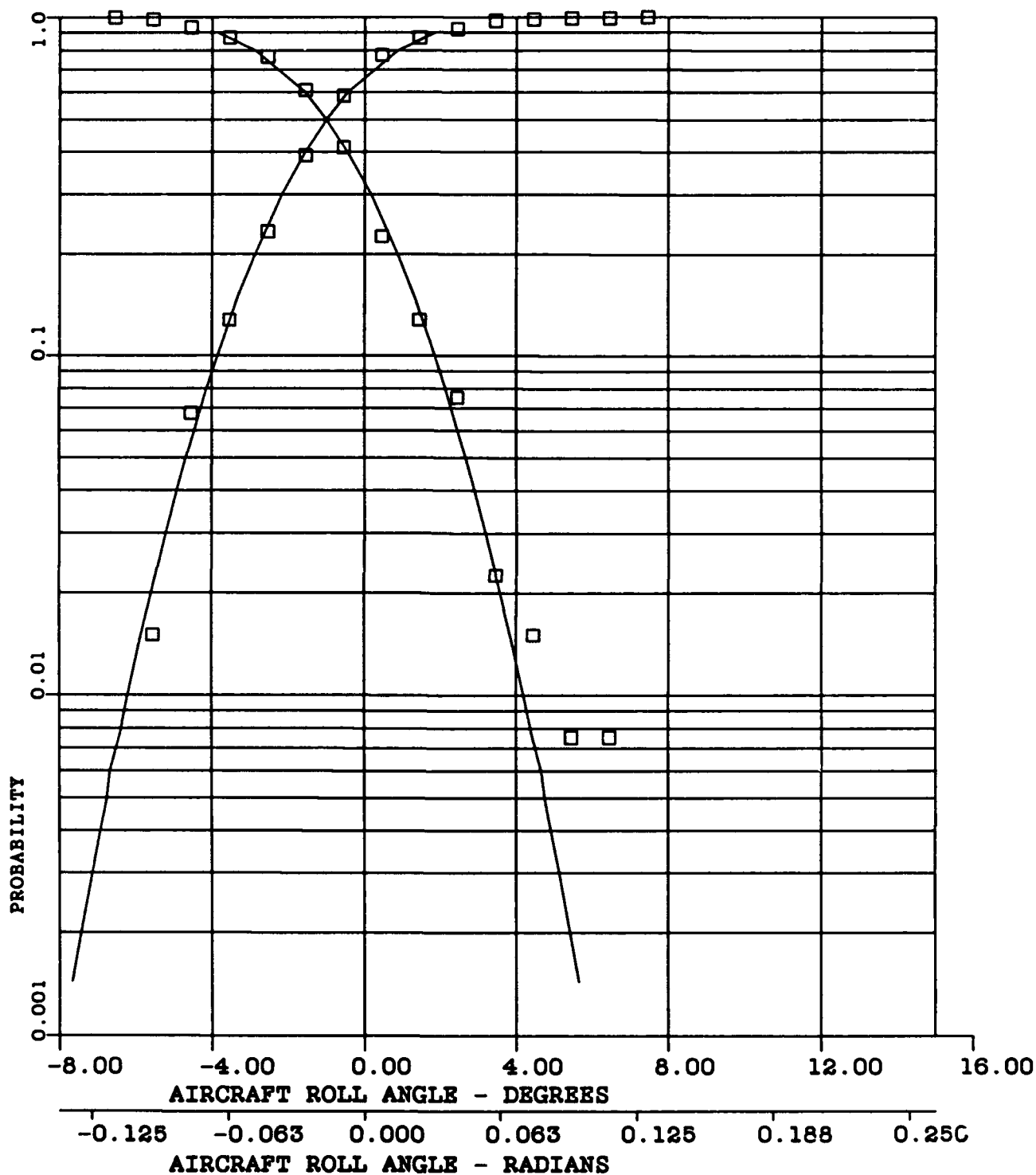


FIGURE O-24 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (0.061 RADIANS)

N-7

 $\bar{X}$  = -0.97 DEGREES (-0.017 RADIANS)

A3=0.73

S = 1.63 DEGREES (0.028 RADIANS)

A4=1.96

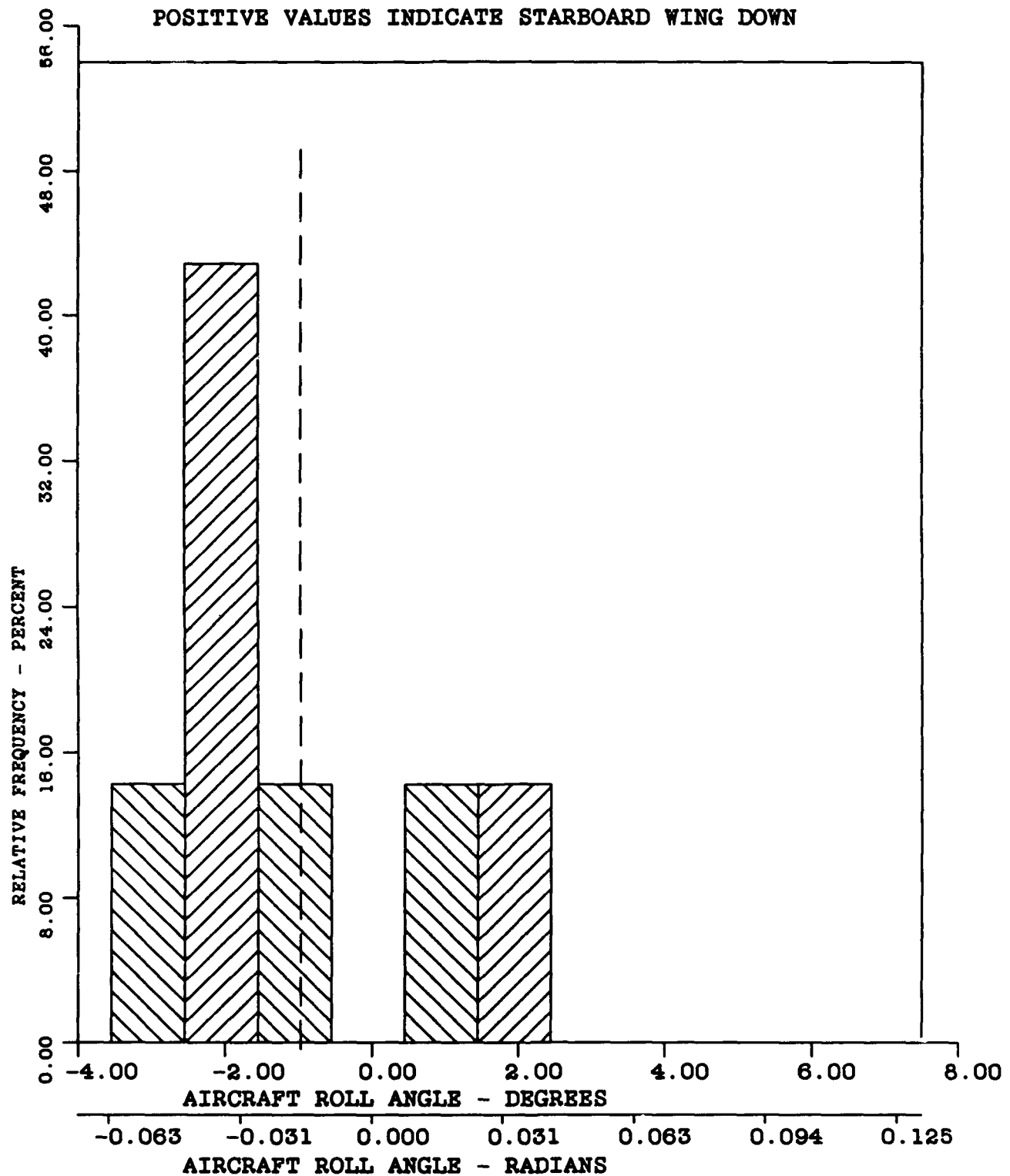


FIGURE O-25 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-7

$\bar{X}$ - -0.97 DEGREES (-0.017 RADIANS)

A3-0.73

S- 1.63 DEGREES (0.028 RADIANS)

A4-1.96

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

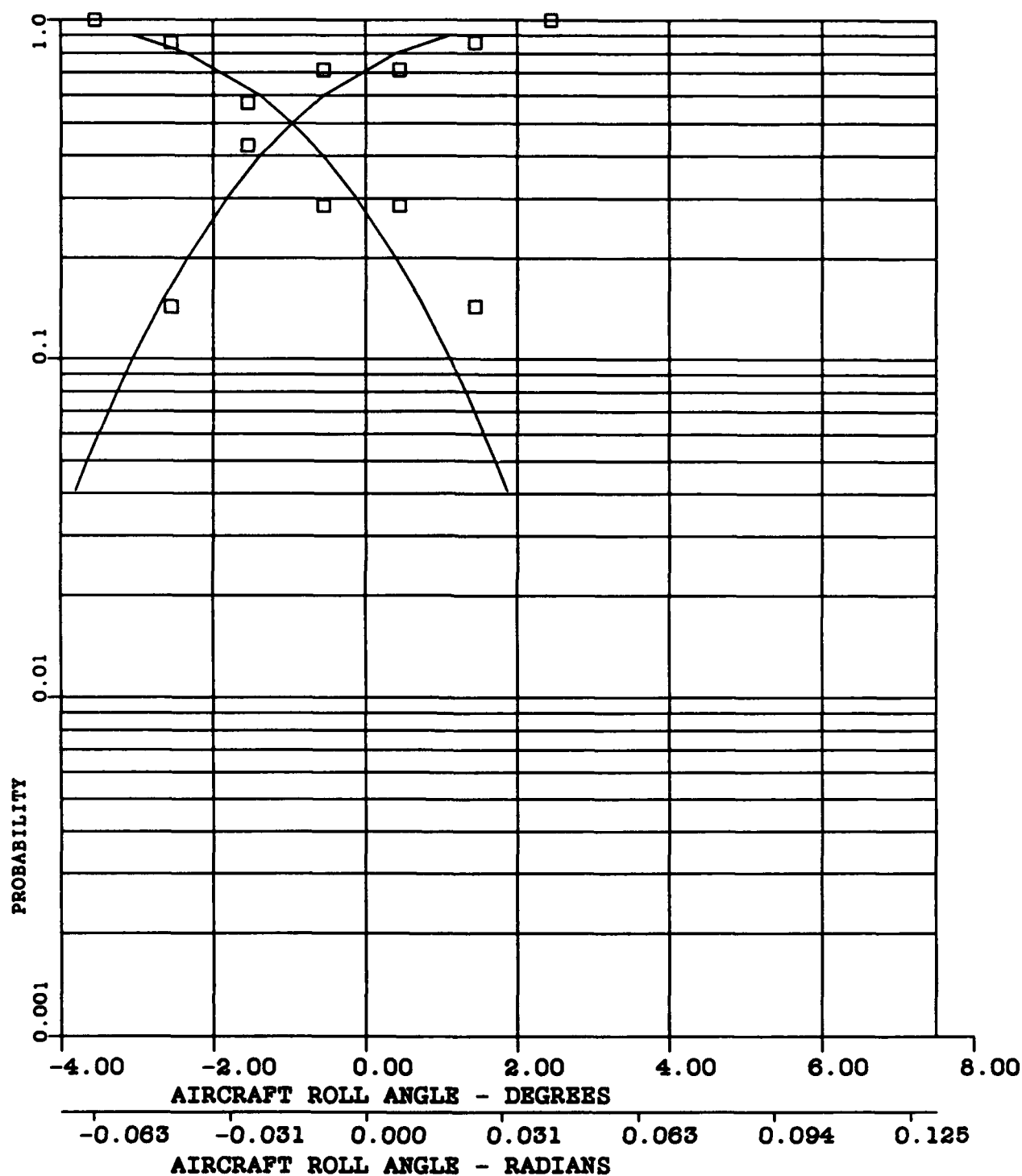


FIGURE O-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -276.20 FEET (84.19 METRES)

A3--0.28

S- 38.32 FEET (11.68 METRES)

A4-2.65

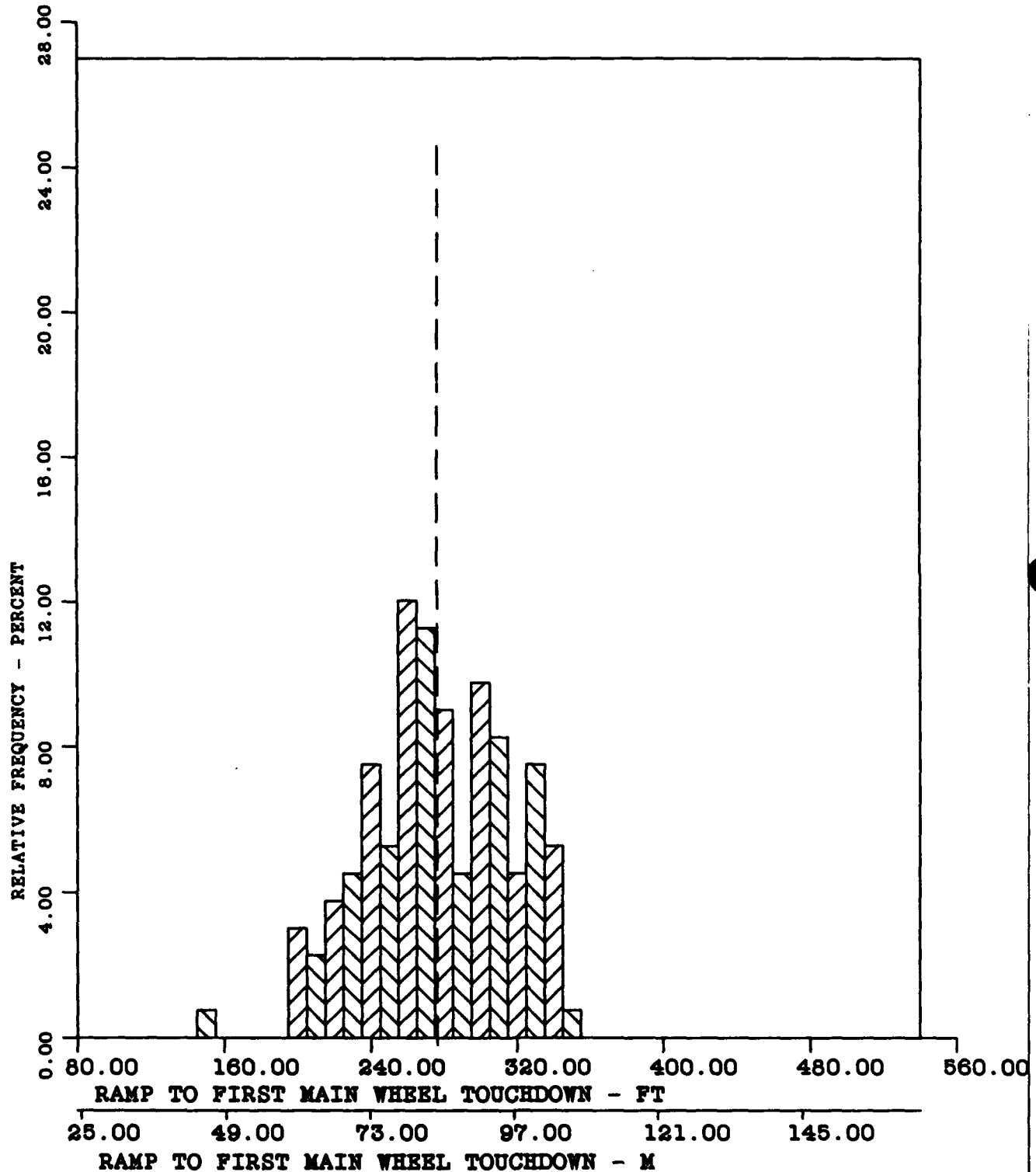


FIGURE O-27 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -276.20 FEET (84.19 METRES)

A3--0.28

S- 38.32 FEET (11.68 METRES)

A4-2.65

CURVE FITTED - NORMAL

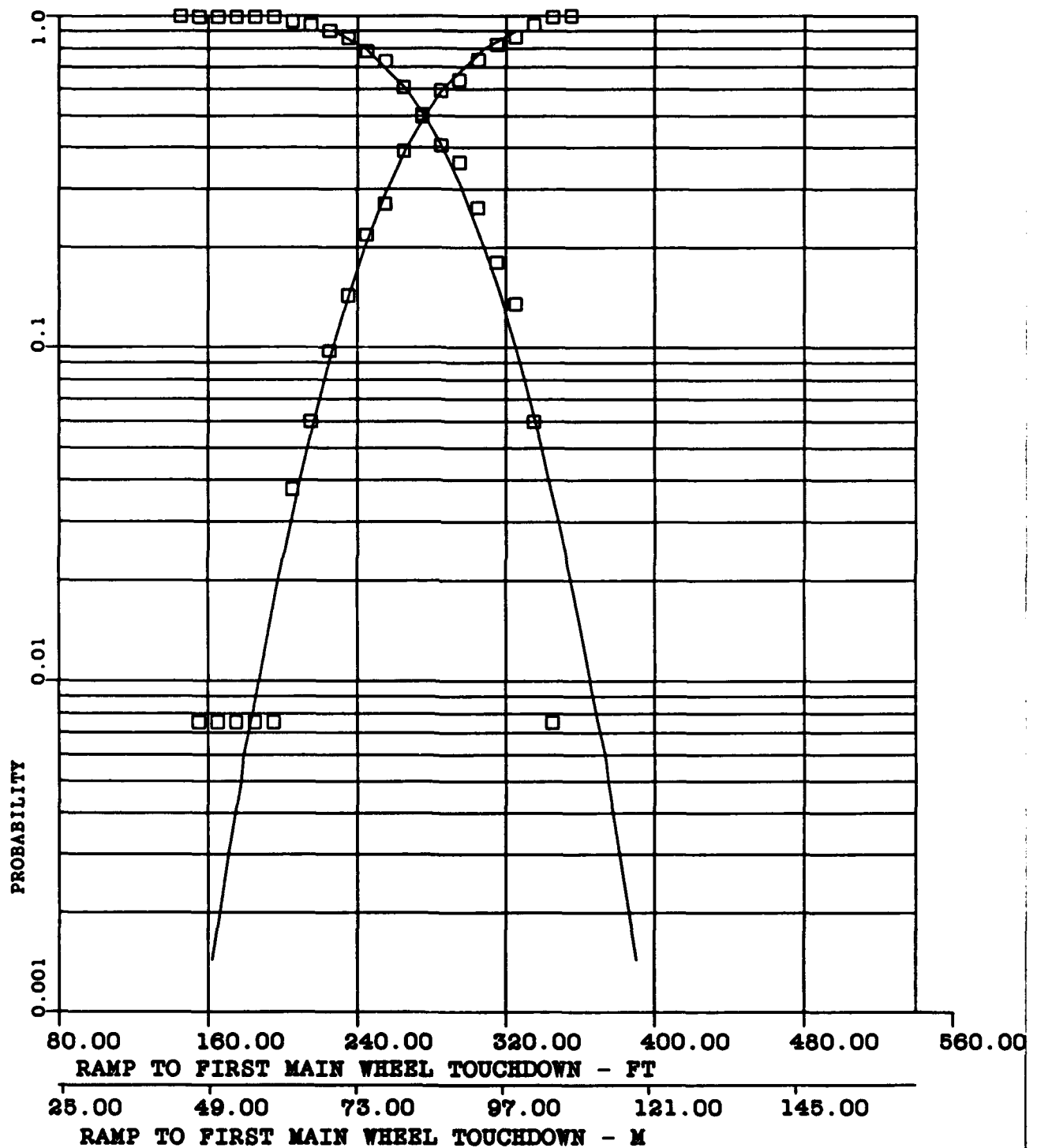


FIGURE O-28 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ --10.68 FEET (-3.26 METRES)

A3-0.36

S- 5.34 FEET (1.63 METRES)

A4-3.81

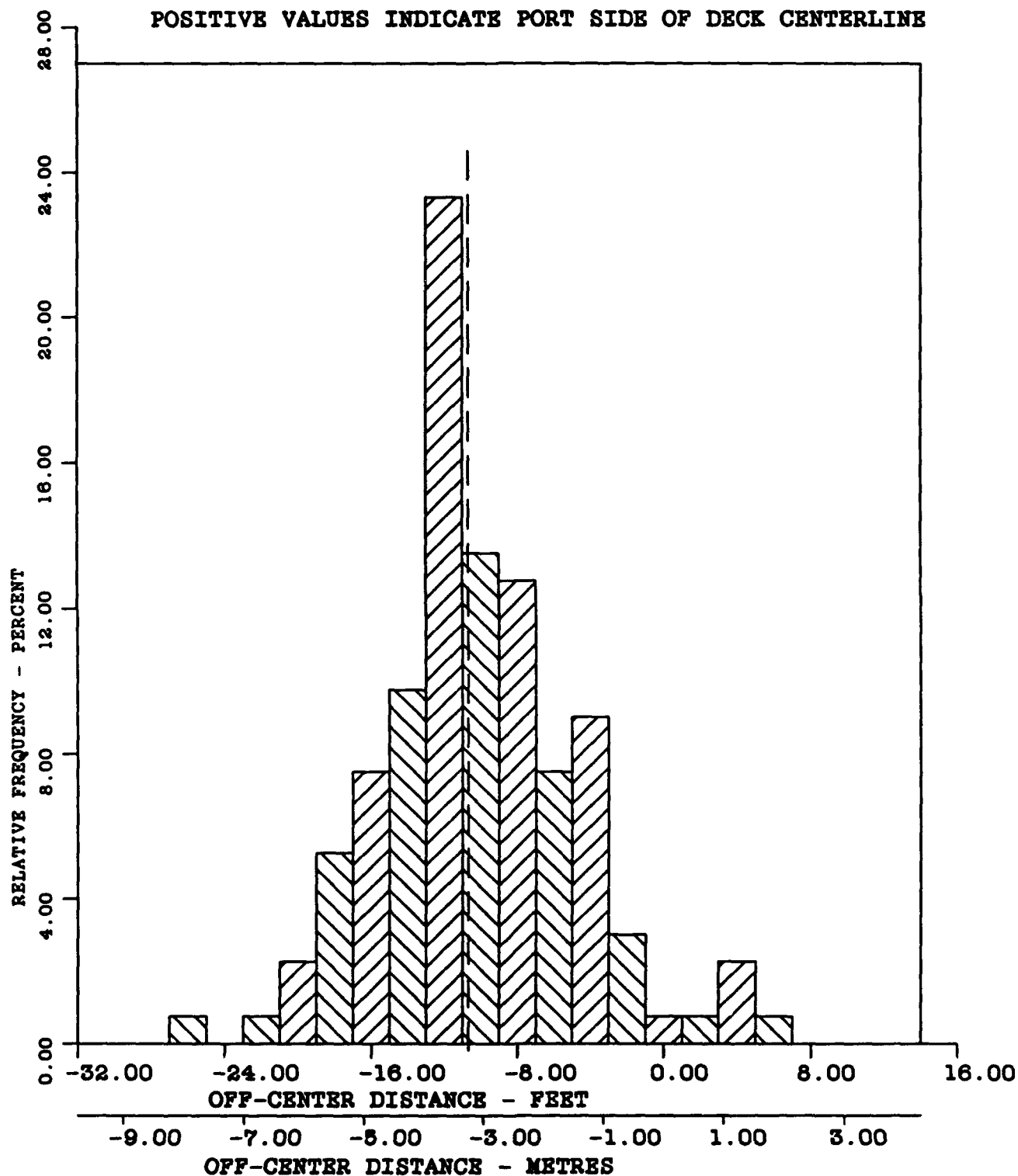


FIGURE O-29 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -10.68 FEET (-3.26 METRES)

A3-0.36

S= 5.34 FEET (1.63 METRES)

A4-3.81

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

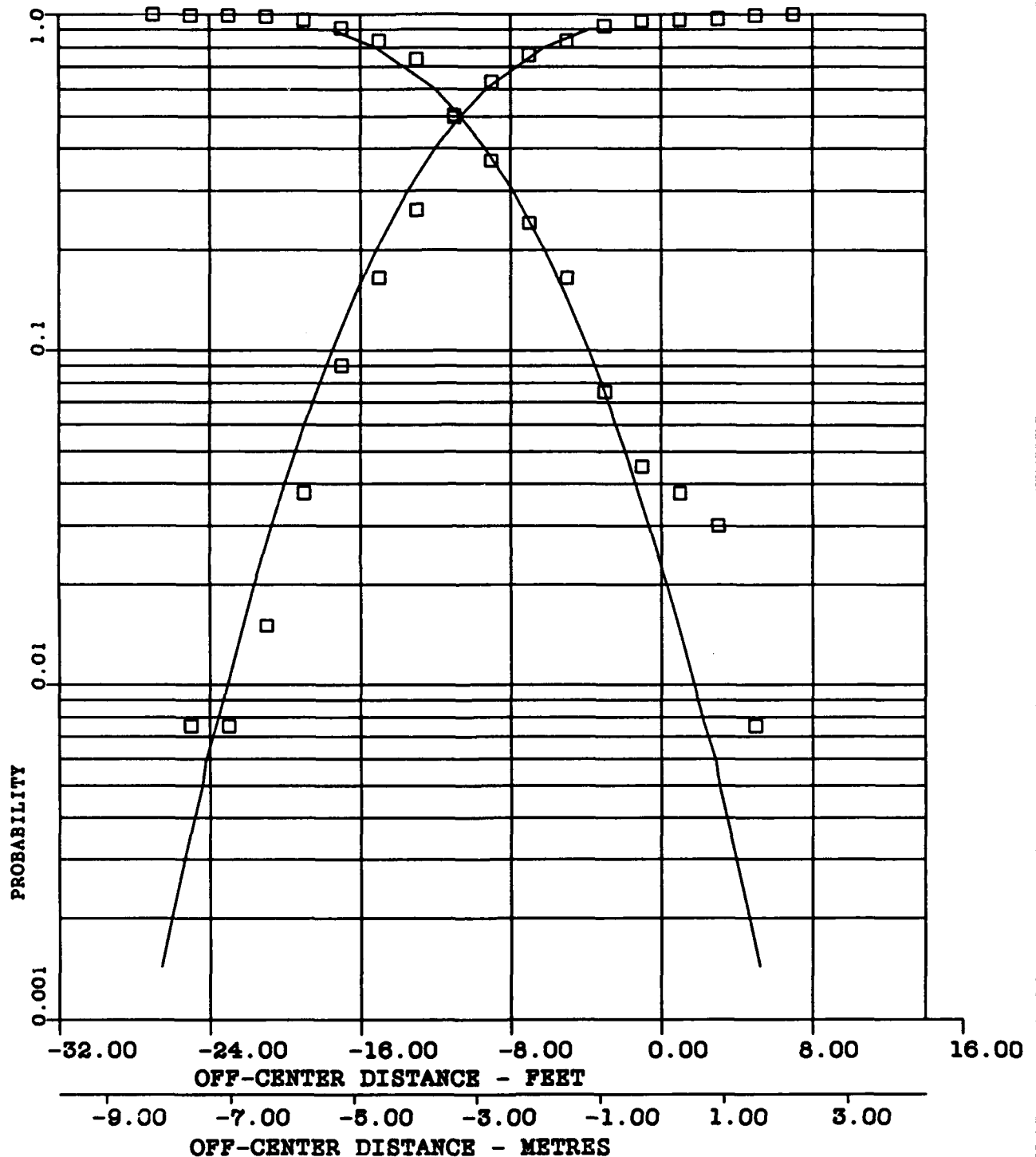


FIGURE O-30 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-98

 $\bar{X}$ -2.96

S- 0.77

A3--0.20

A4-2.34

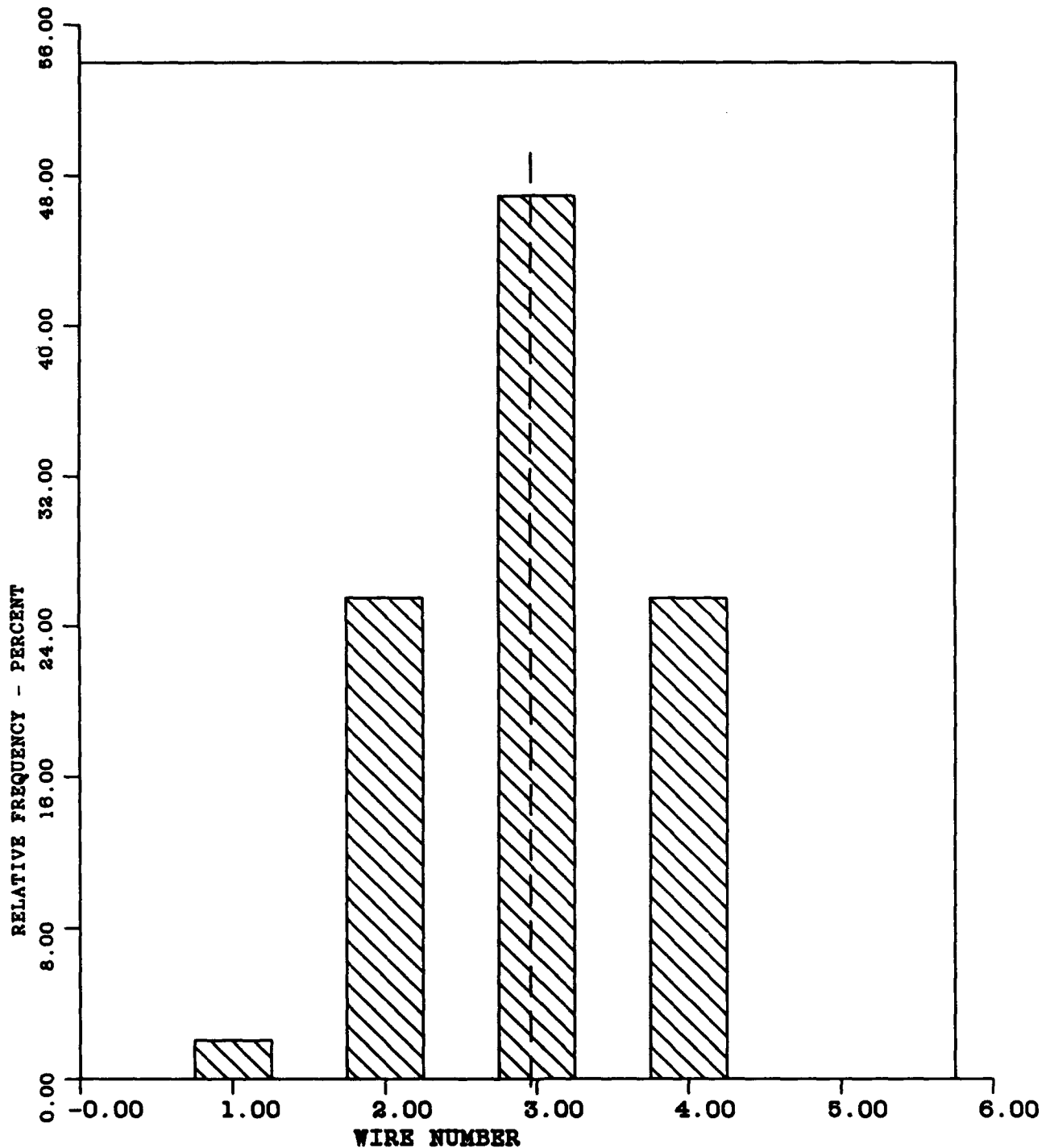


FIGURE O-31 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -2.84 DEGREES (0.050 RADIANS)

A3--0.37

S- 0.71 DEGREES (0.012 RADIANS)

A4-2.78

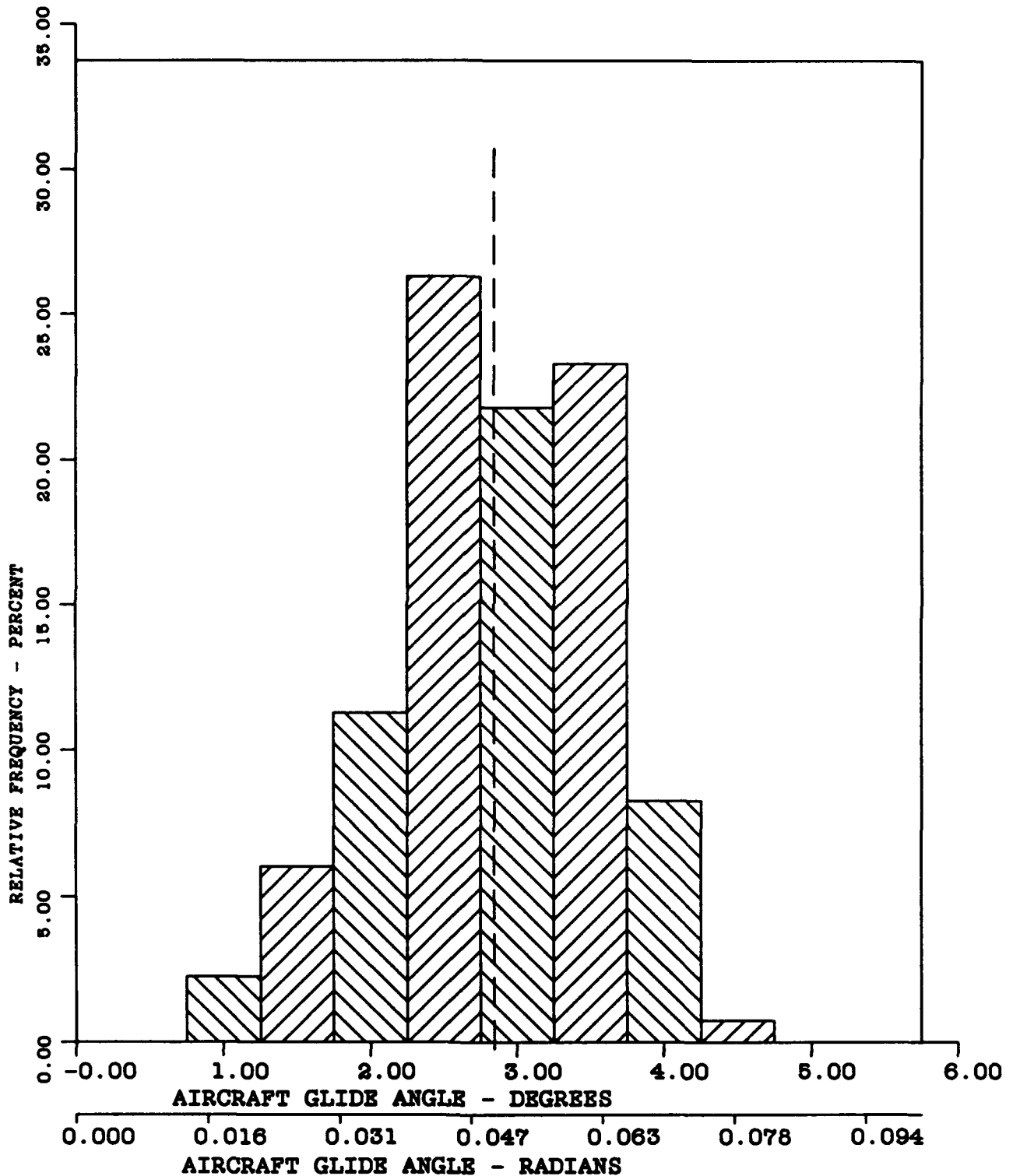


FIGURE O-32 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -90.59 KNOTS (46.60 METRES/SEC)

A3--0.17

S- 5.87 KNOTS (3.02 METRES/SEC)

A4-3.39

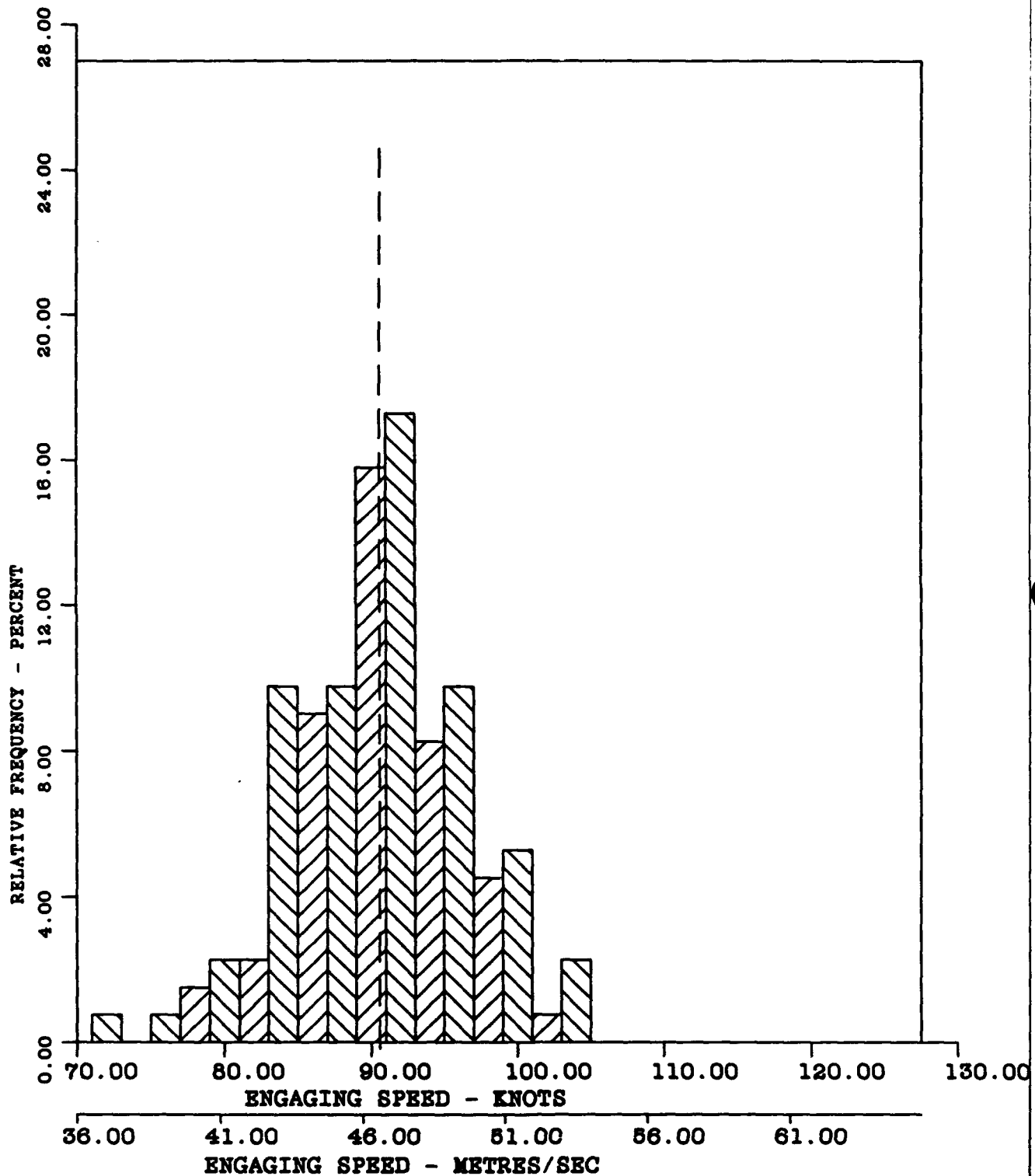


FIGURE O-33 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -90.59 KNOTS (46.60 METRES/SEC)

A3--0.17

S= 5.87 KNOTS (3.02 METRES/SEC)

A4-3.39

CURVE FITTED - NORMAL

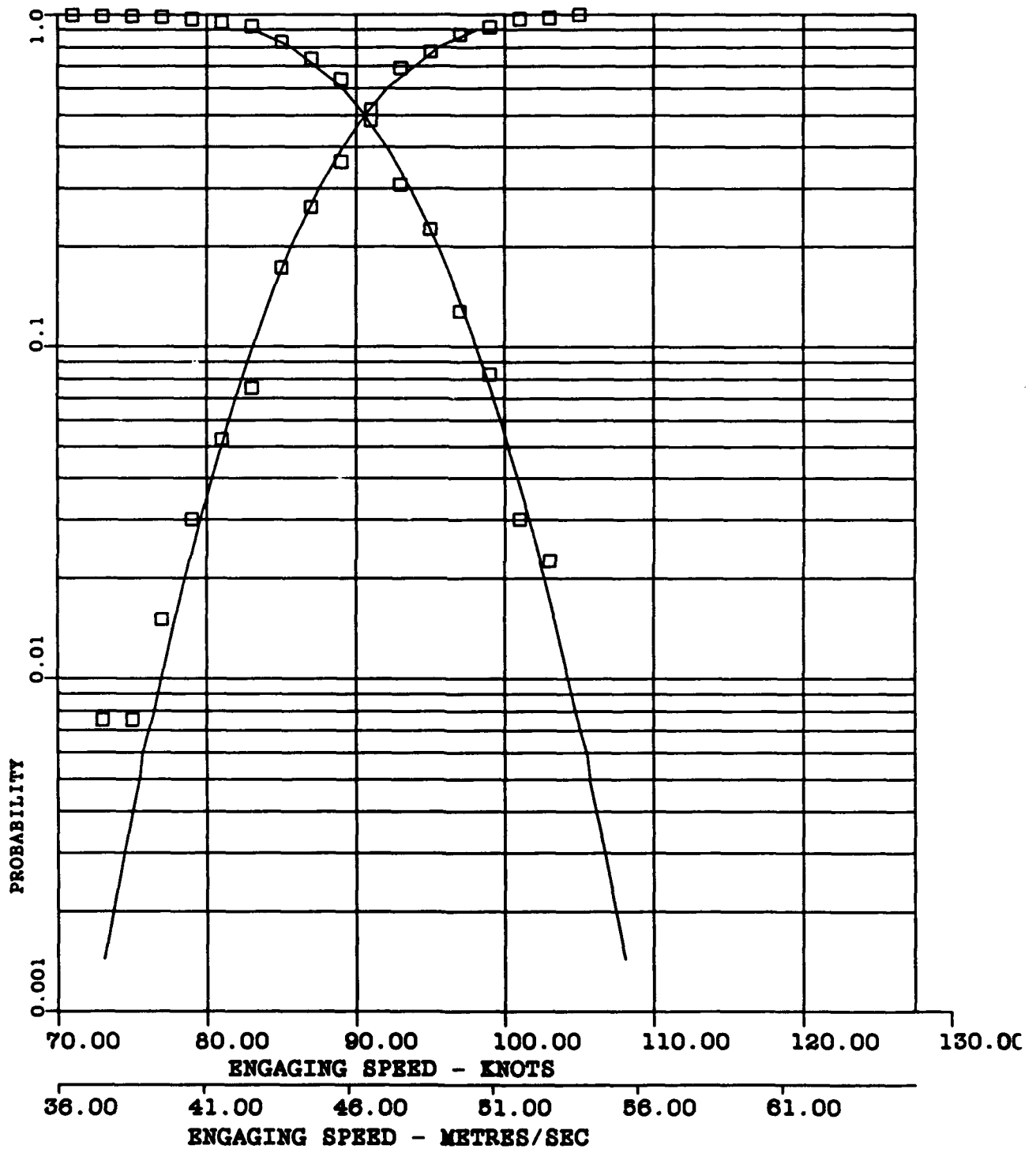


FIGURE O-34 PROBABILITY DISTRIBUTION OF ENGAGING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -105.01 KNOTS (54.02 METRES/SEC)

A3--0.06

S- 2.55 KNOTS (1.31 METRES/SEC)

A4-2.19

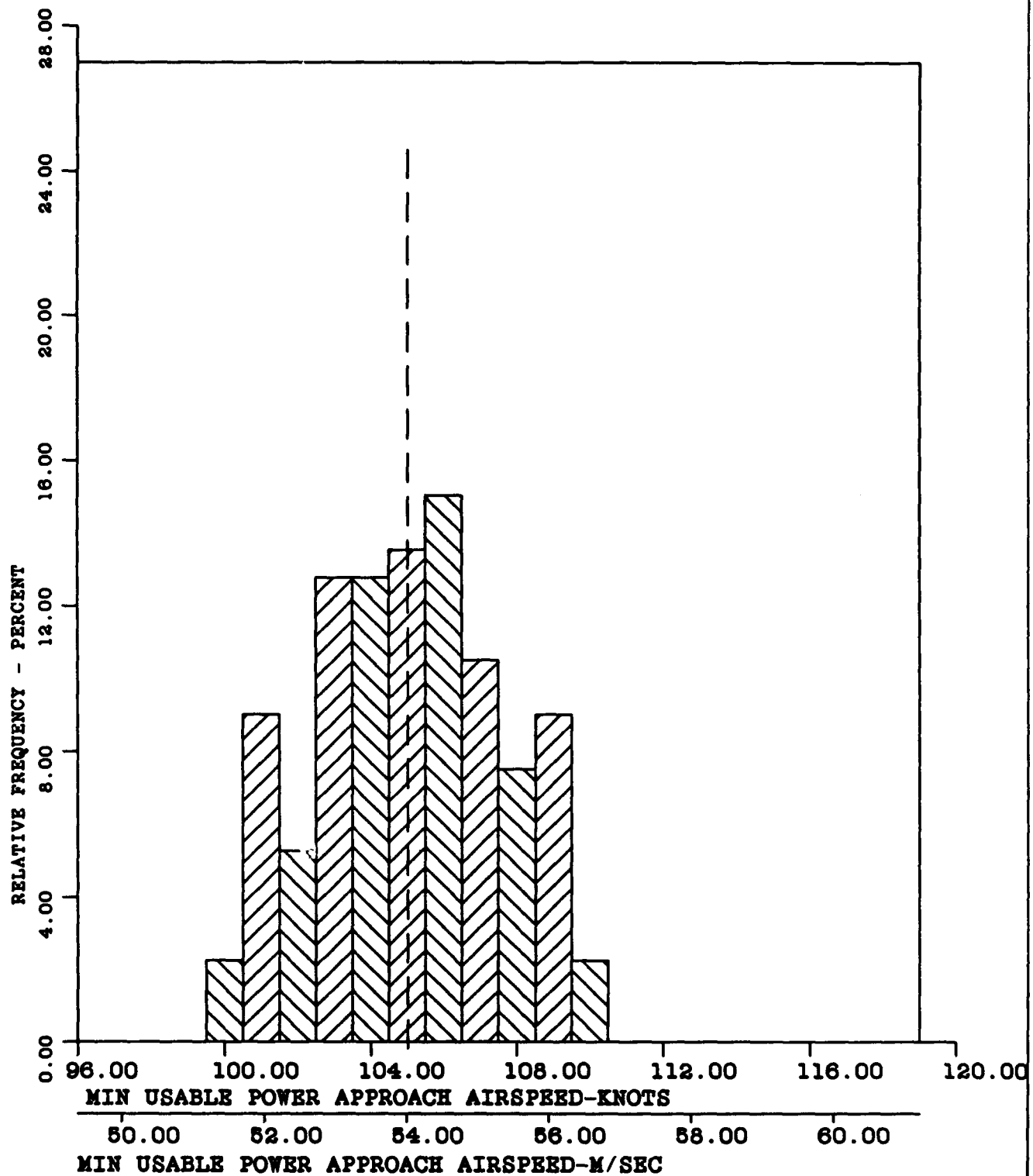


FIGURE O-35 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -1.17

S- 0.05

A3--0.26

A4-4.00

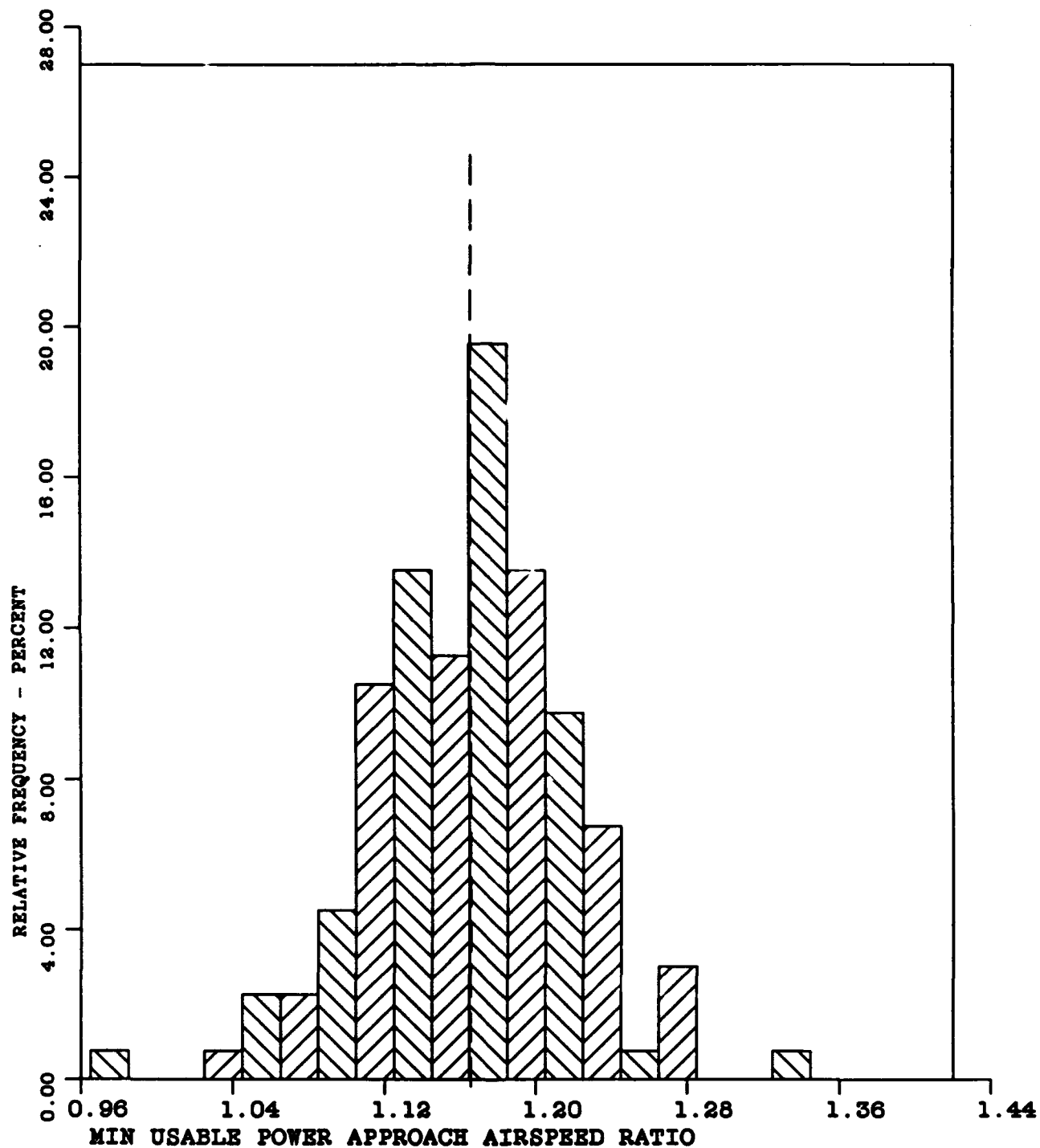


FIGURE O-36 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -0.28 DEGREES (-0.005 RADIANS)

A3--0.28

S- 1.04 DEGREES (0.018 RADIANS)

A4-3.55

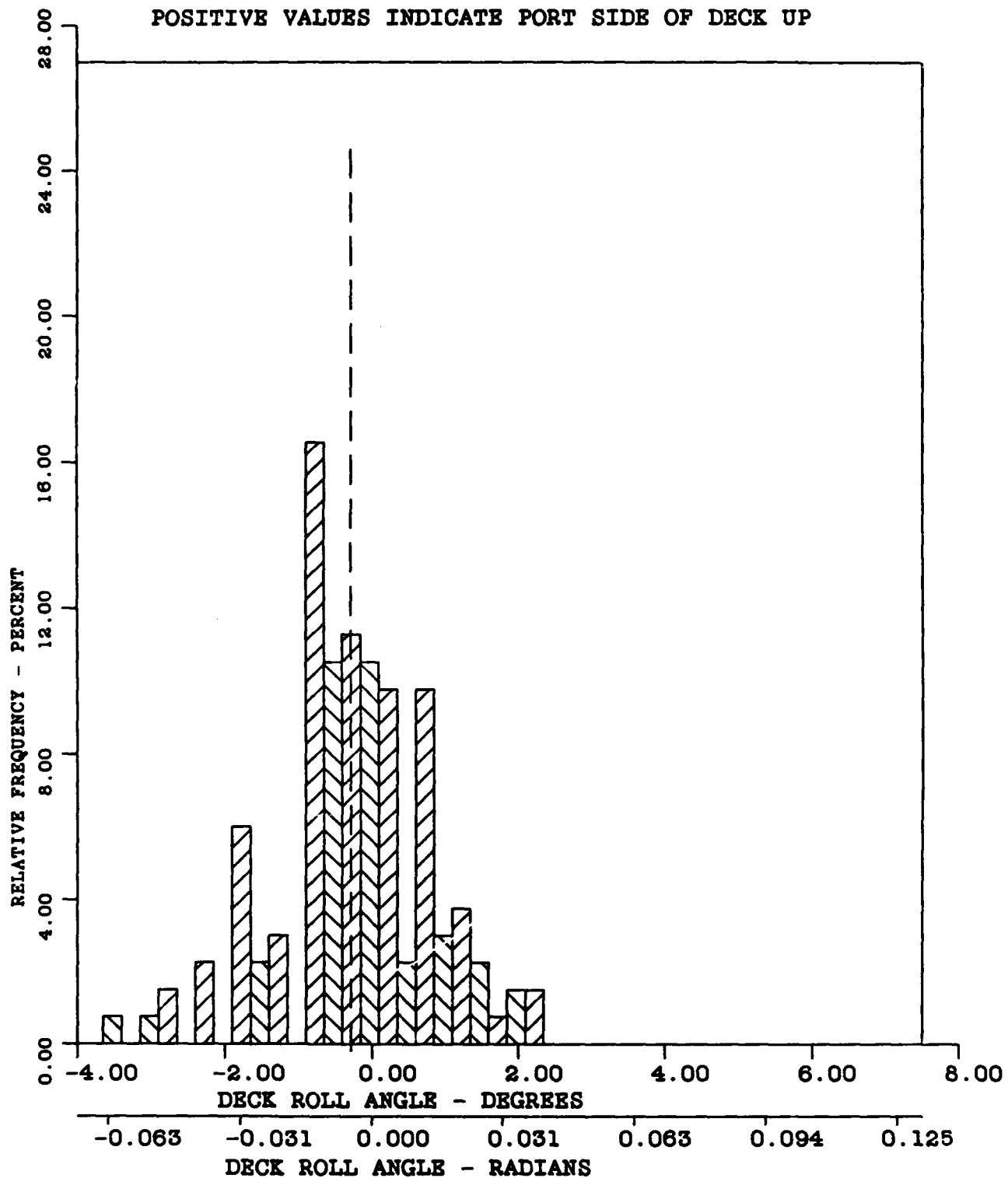


FIGURE O-37 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -0.28 DEGREES (-0.005 RADIANS)

A3--0.28

S= 1.04 DEGREES (0.018 RADIANS)

A4-3.55

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

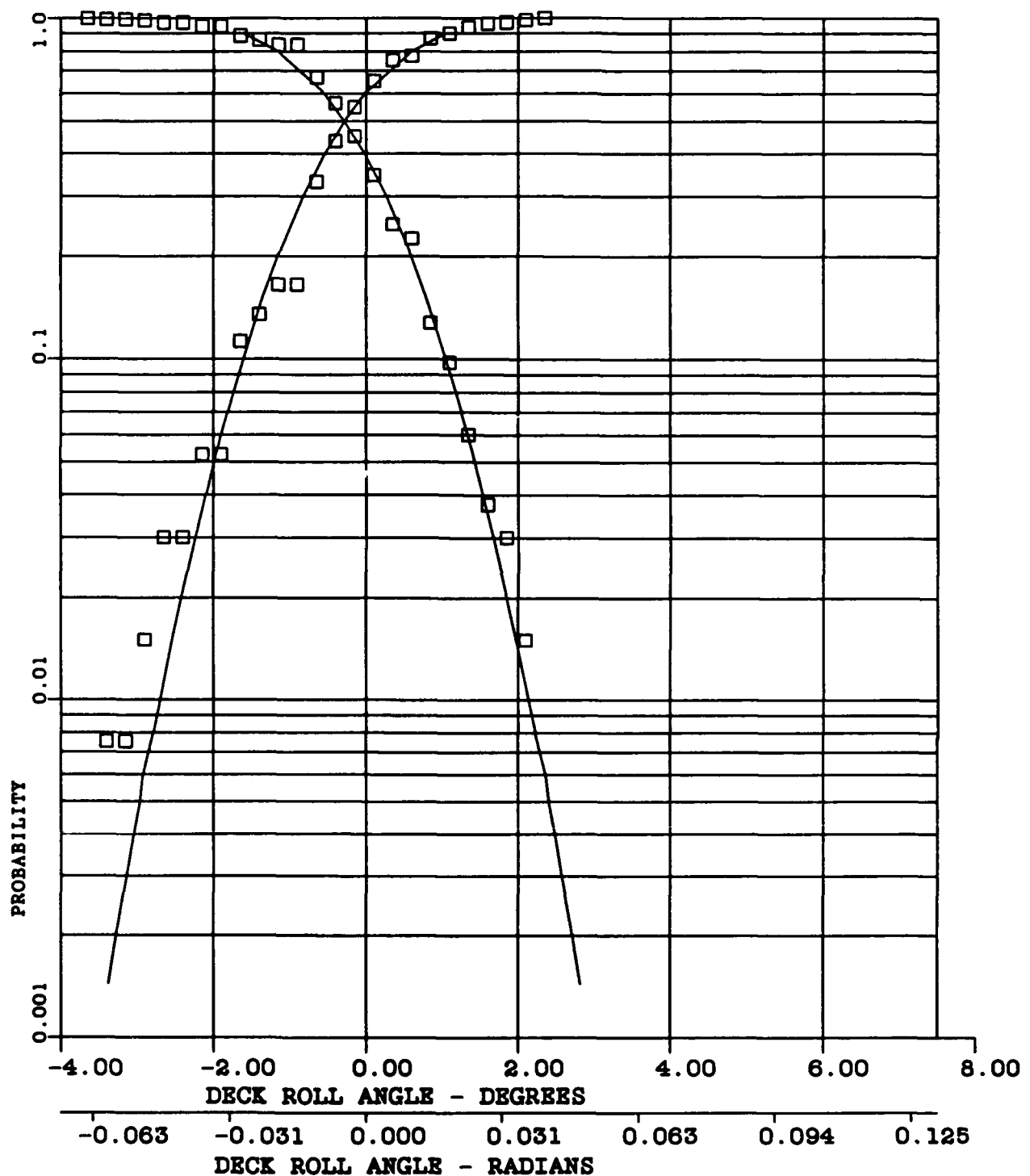


FIGURE O-38 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ - -0.37 DEGREES (-0.007 RADIANS)

A3-0.15

S- 0.21 DEGREES (0.004 RADIANS)

A4-2.17

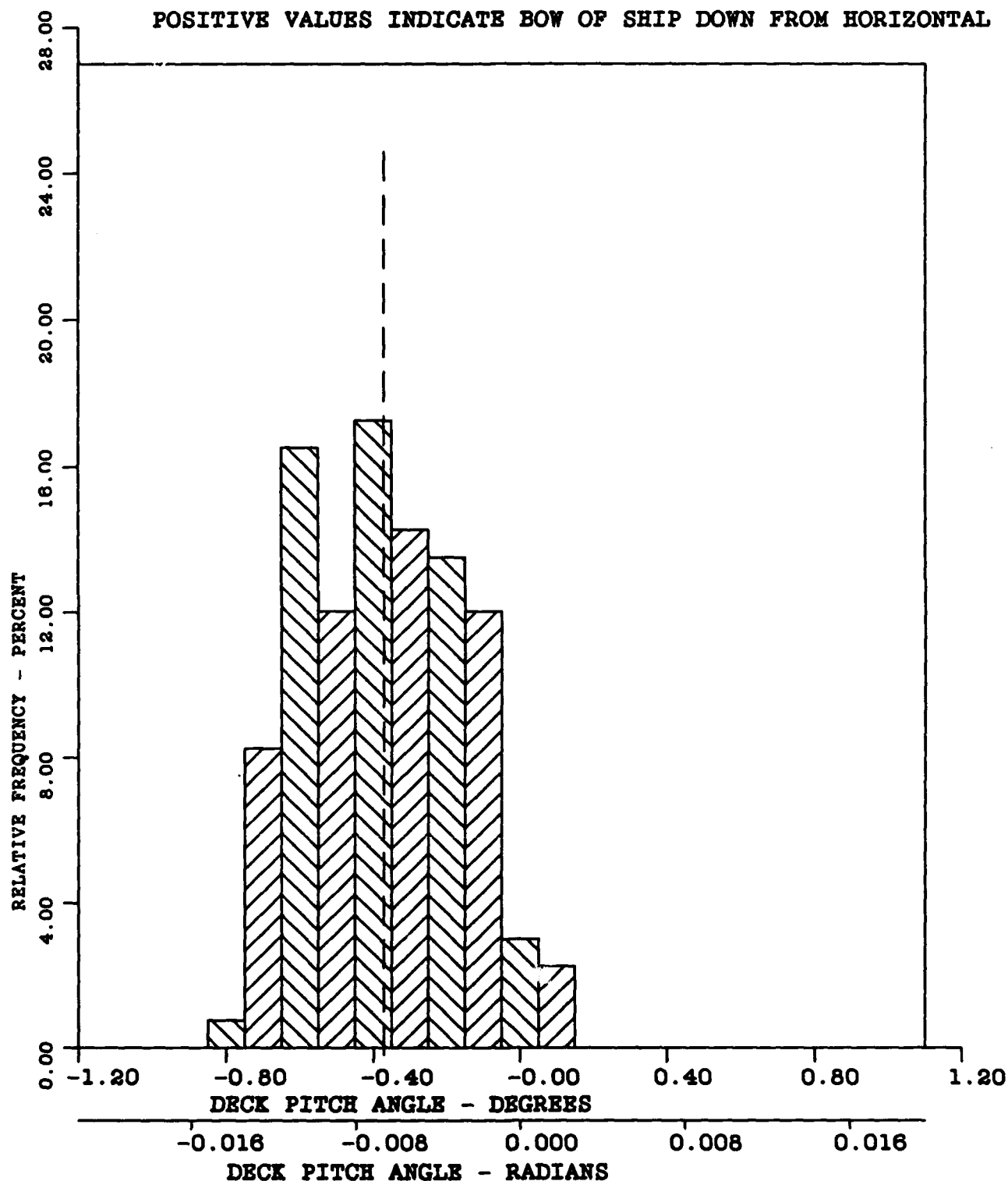


FIGURE O-39 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X} = -0.37$  DEGREES ( $-0.007$  RADIANS)

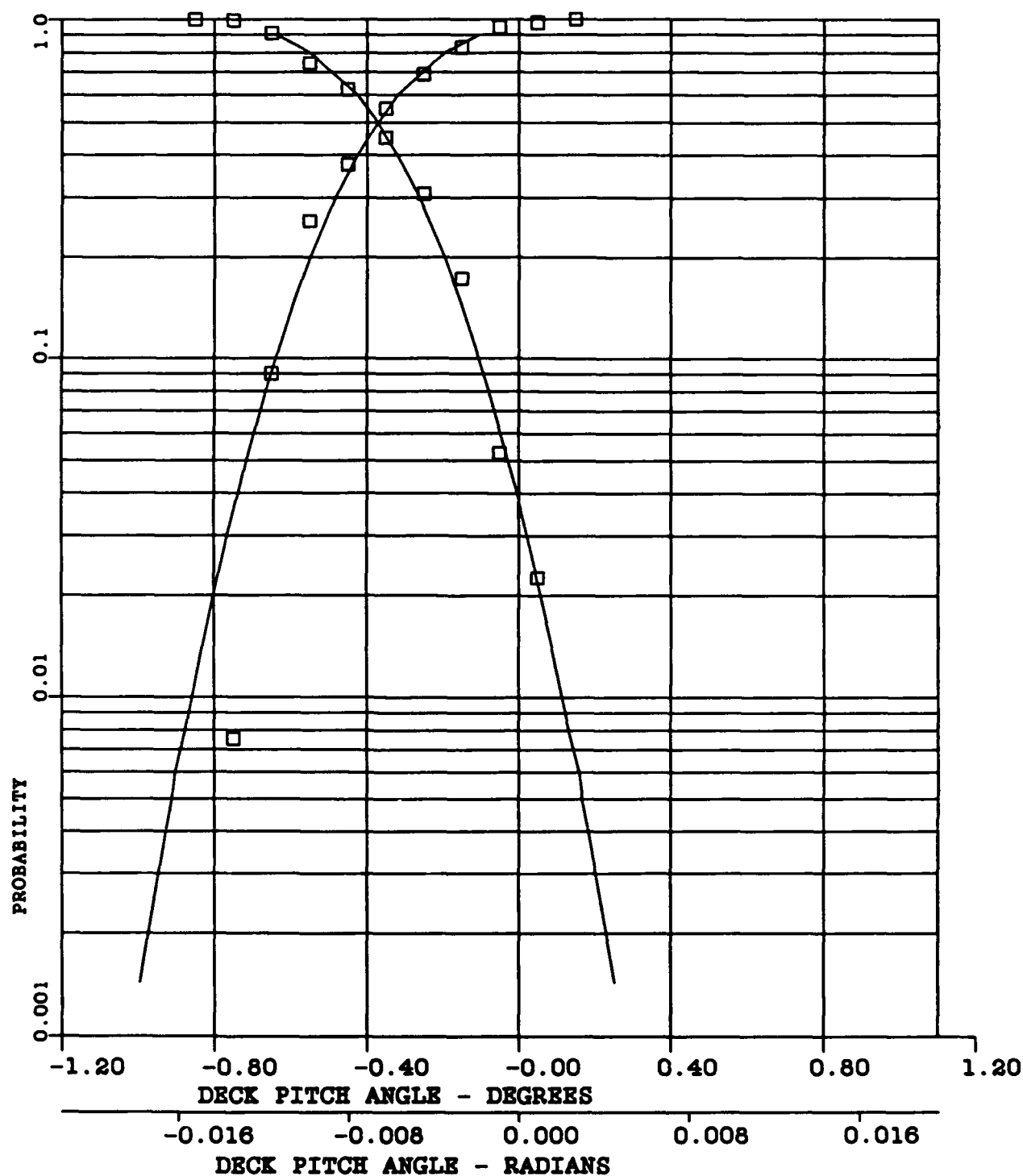
A3=0.15

S= 0.21 DEGREES (0.004 RADIANS)

A4=2.17

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

FIGURE O-40 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-66)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

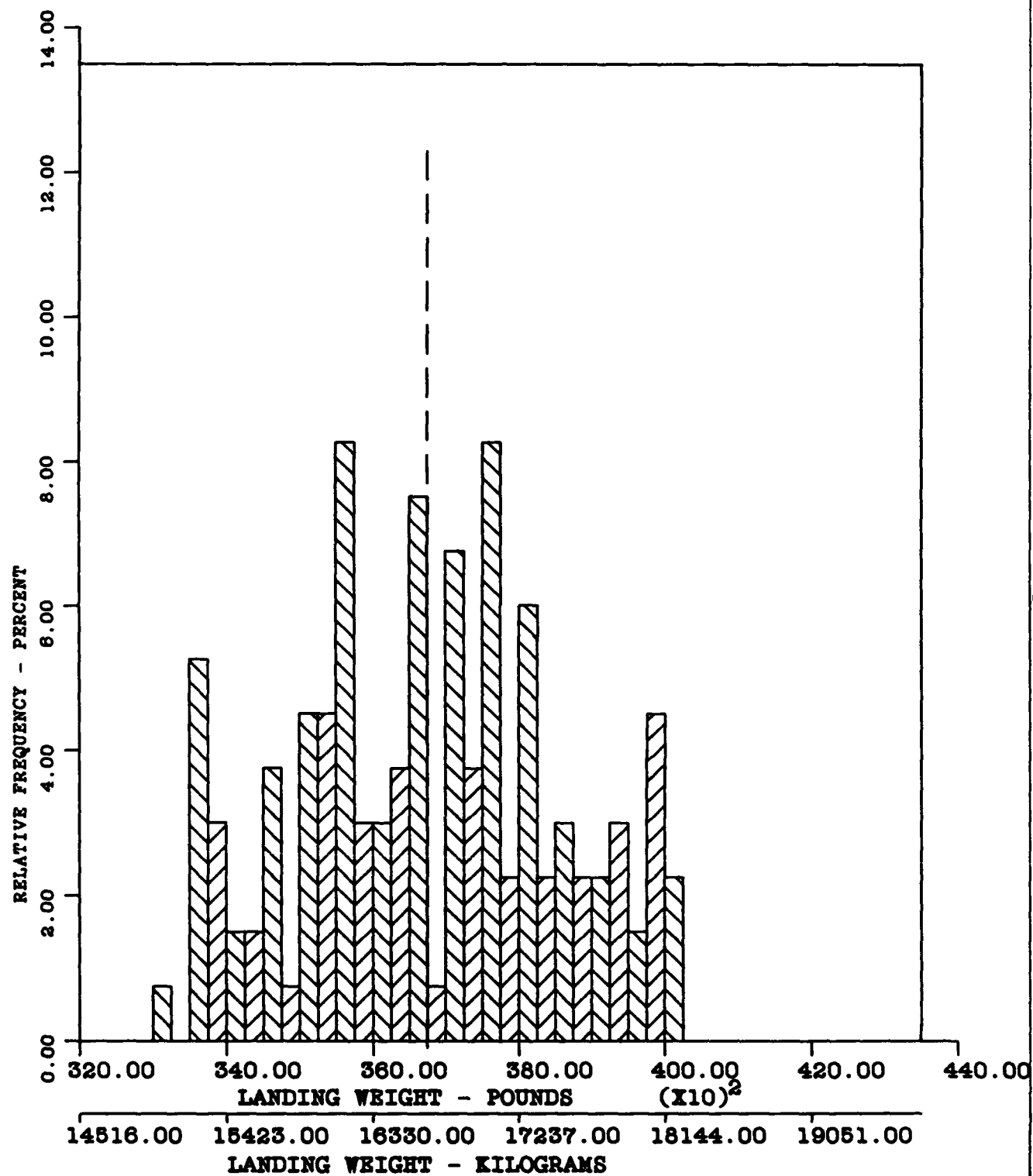
N-133

 $\bar{X}$ -36740.60 POUNDS (16668.54 KILOGRAMS)

A3--0.00

S- 1781.57 POUNDS (808.12 KILOGRAMS)

A4-2.19

FIGURE O-41 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIAN)

N-133

 $\bar{X}$ -0.55 DEG/SEC (0.010 RAD/SEC)

A3-0.55

S- 5.91 DEG/SEC (0.103 RAD/SEC)

A4-4.06

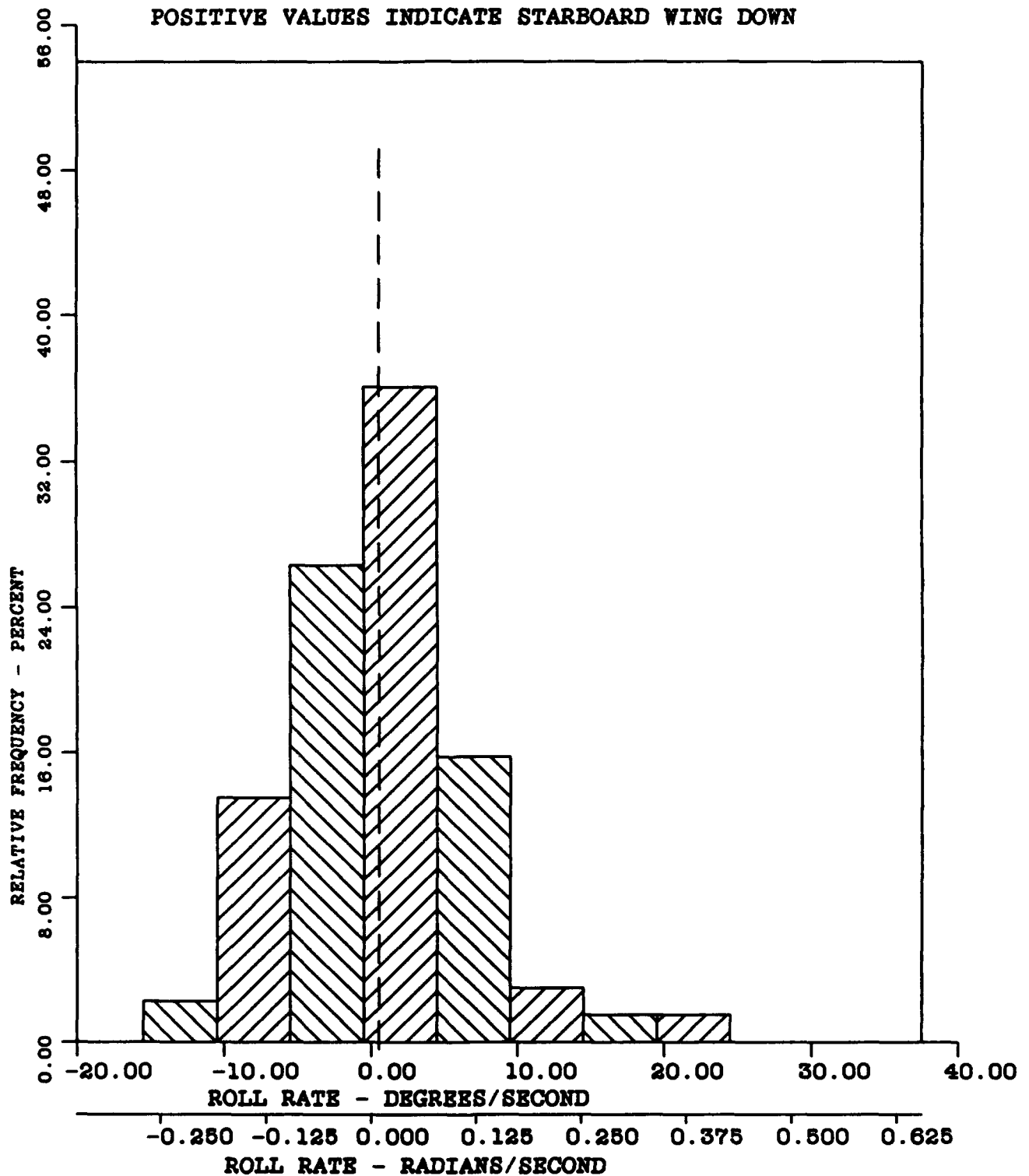


FIGURE O-42 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -0.55 DEG/SEC (0.010 RAD/SEC)

A3-0.55

S= 8.91 DEG/SEC (0.103 RAD/SEC)

A4-4.06

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

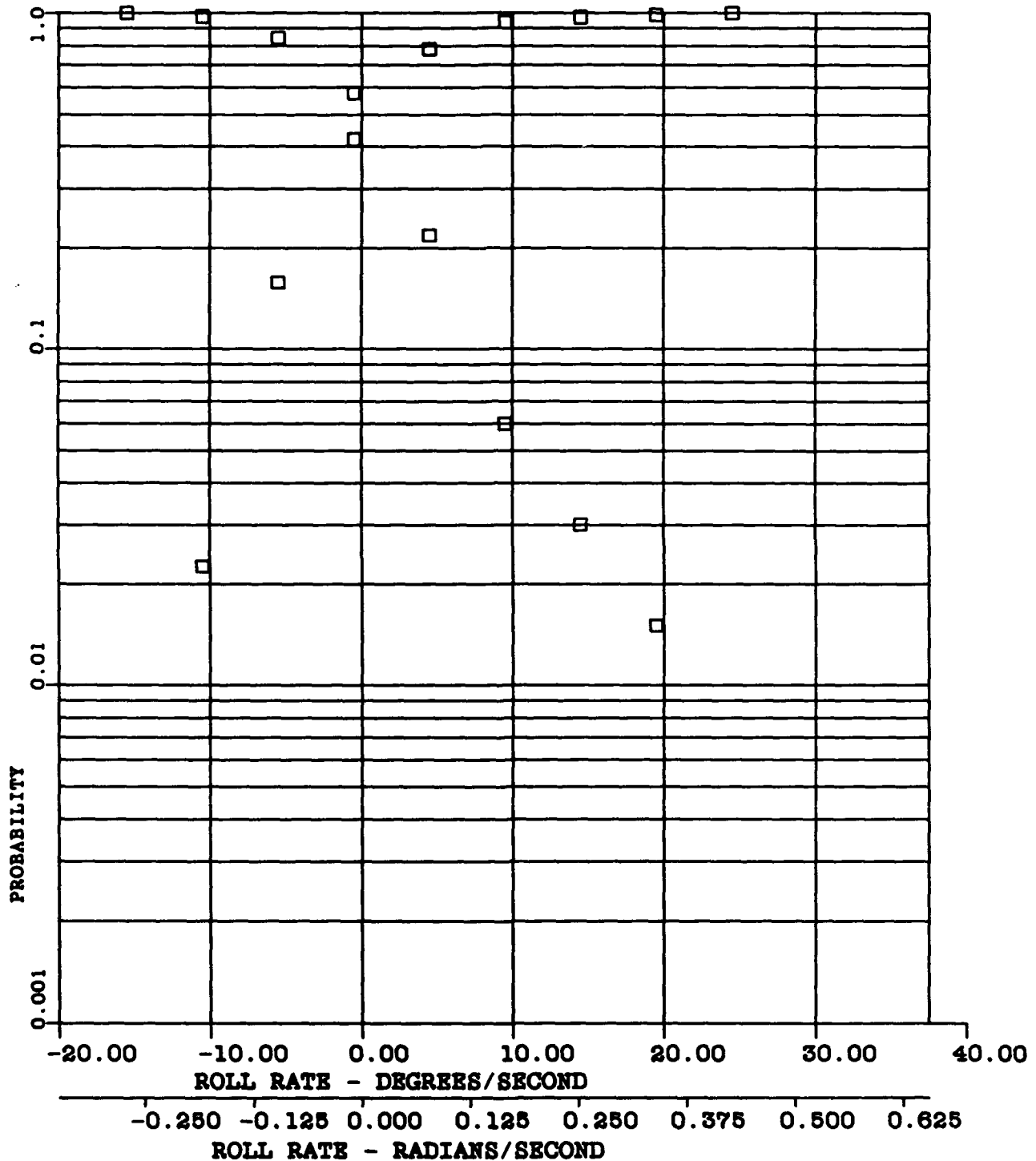


FIGURE O-43 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -0.44 DEG/SEC (-0.008 RAD/SEC)

A3--0.42

S- 2.33 DEG/SEC (0.041 RAD/SEC)

A4-3.45

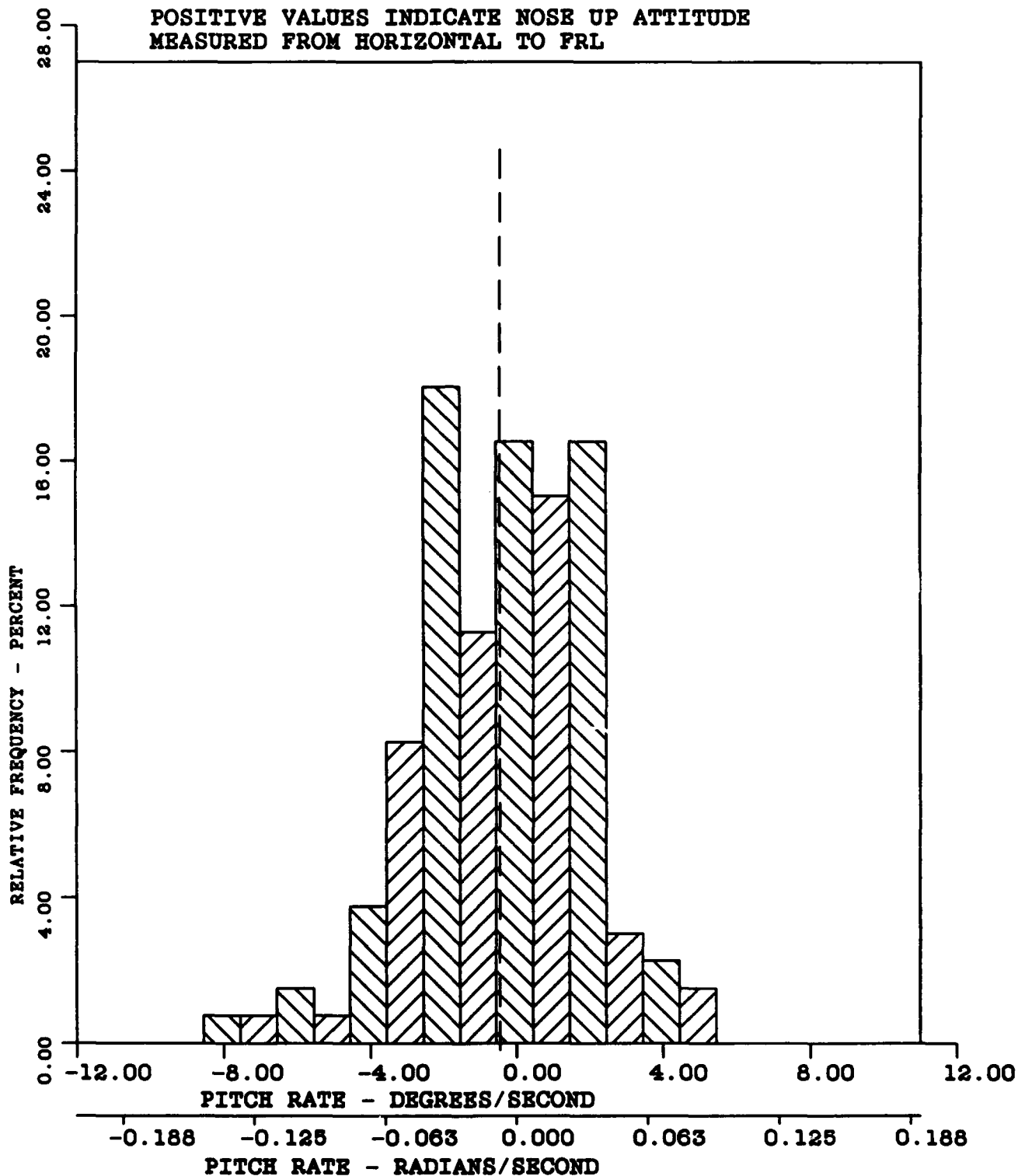


FIGURE O-44 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL S-3A AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

$\bar{X}$  = -0.44 DEG/SEC (-0.008 RAD/SEC)

A3 = -0.42

S = 2.33 DEG/SEC (0.041 RAD/SEC)

A4 = 3.45

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

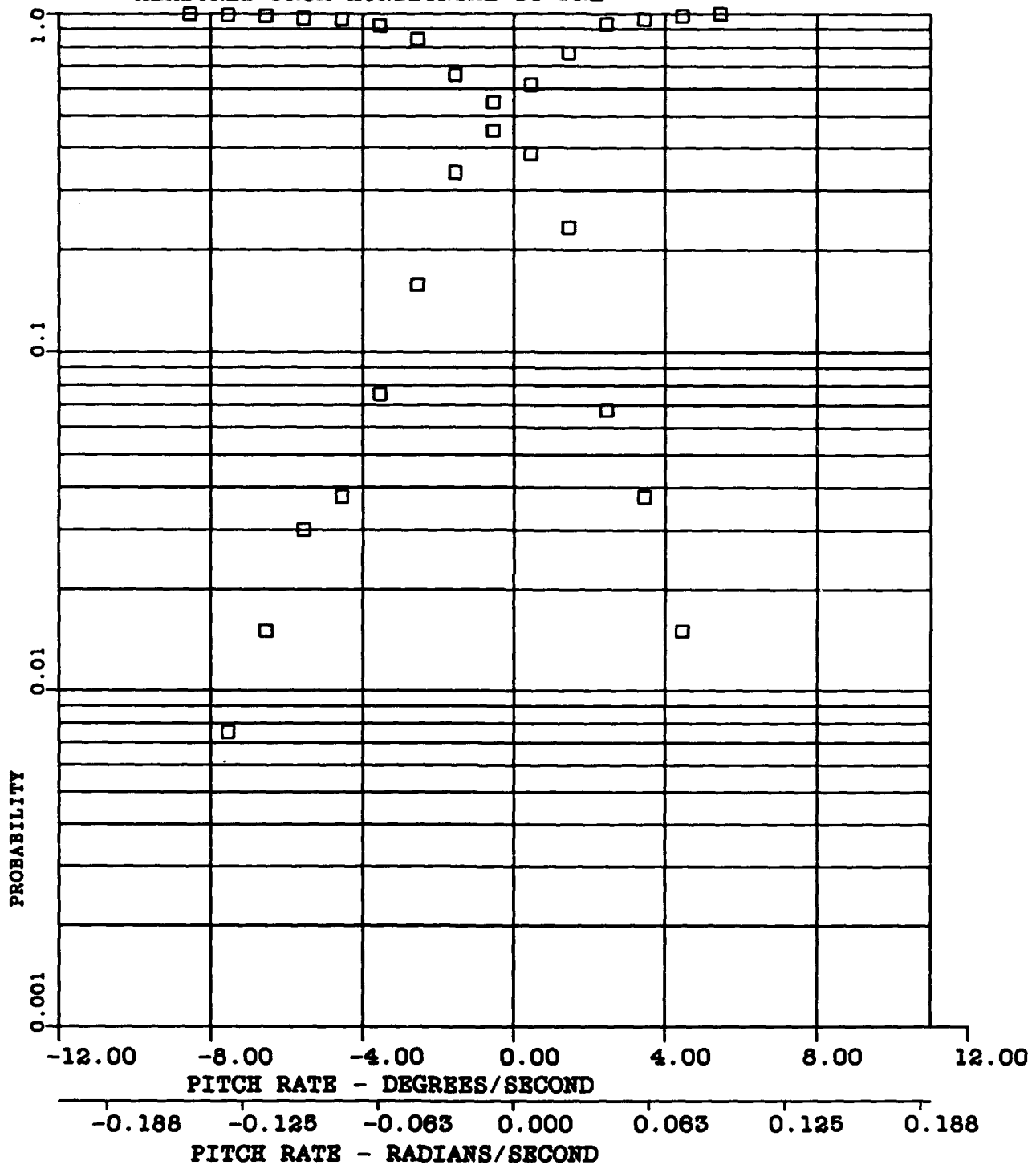


FIGURE O-45 . PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -3.51 DEGREES (-0.061 RADIANS)

A3-1.50

S- 1.58 DEGREES (0.028 RADIANS)

A4-10.27

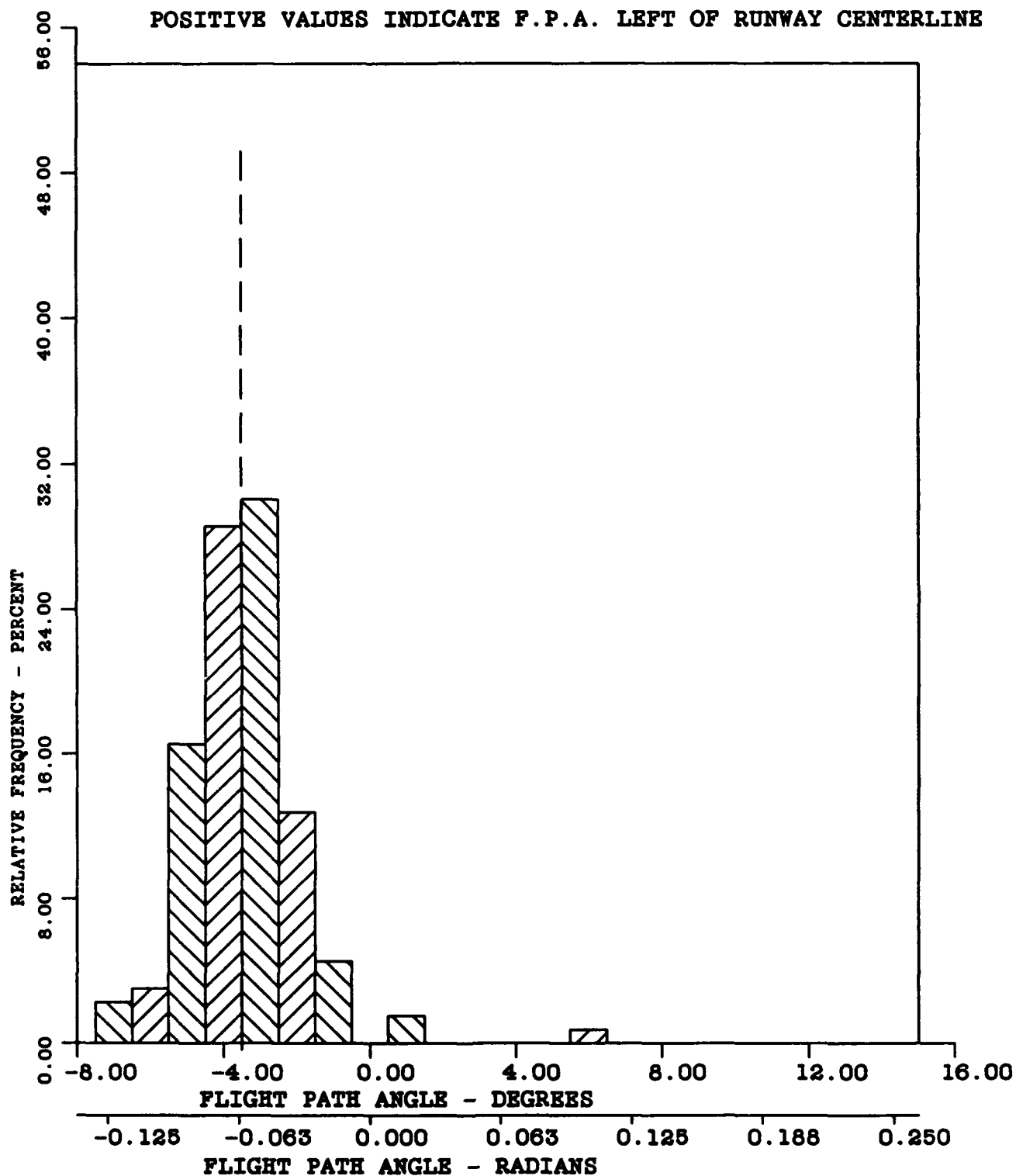


FIGURE O-46 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL S-3A AIRCRAFT  
NIGHT LANDINGS

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)  
N-133

$\bar{X}$ -3.51 DEGREES (-0.061 RADIANS)

A3-1.50

S- 1.58 DEGREES (0.028 RADIANS)

A4-10.27

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

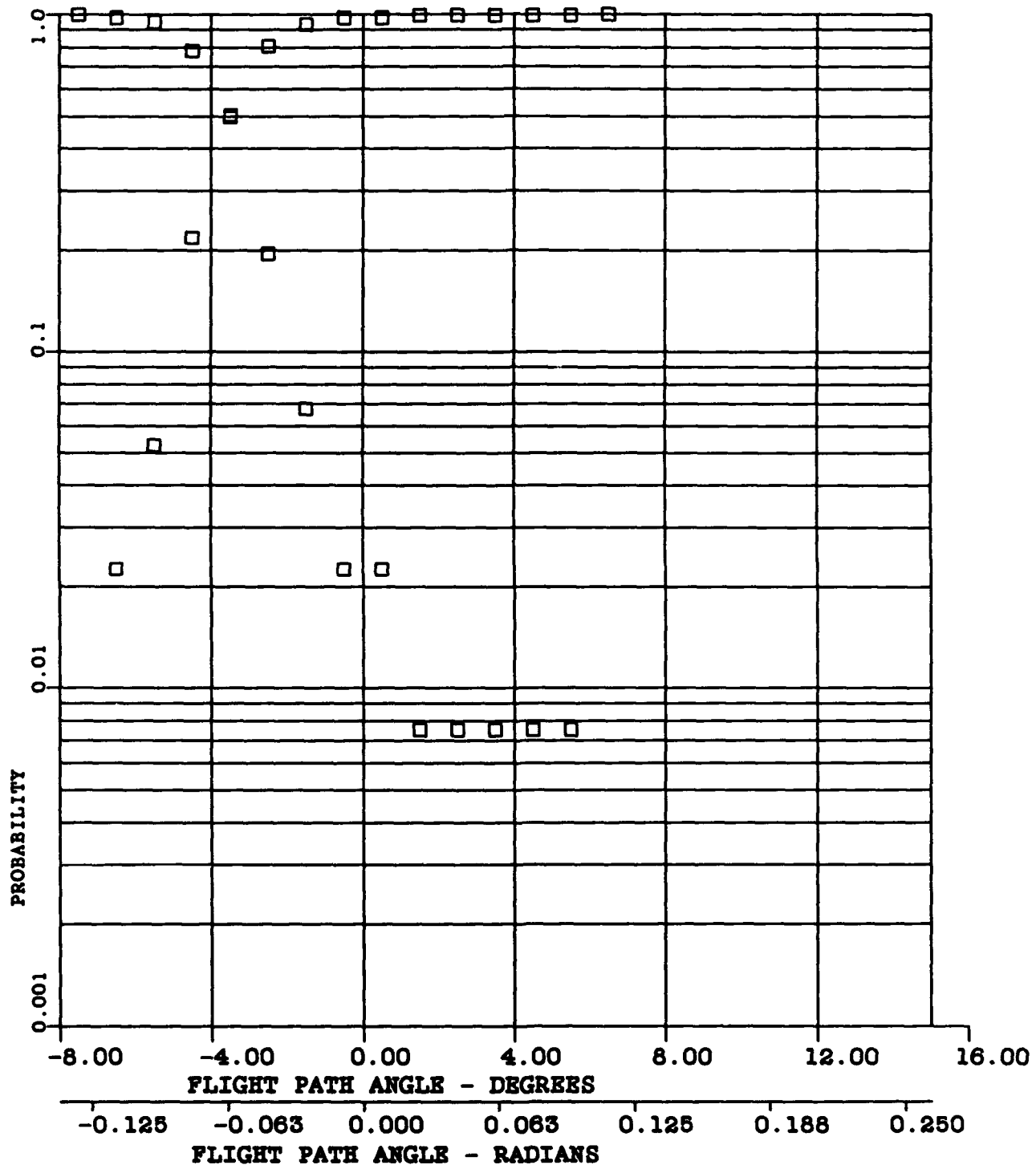


FIGURE O-47 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -3.06 DEGREES (0.053 RADIANS)

A3-0.27

S- 3.68 DEGREES (0.064 RADIANS)

A4-2.45

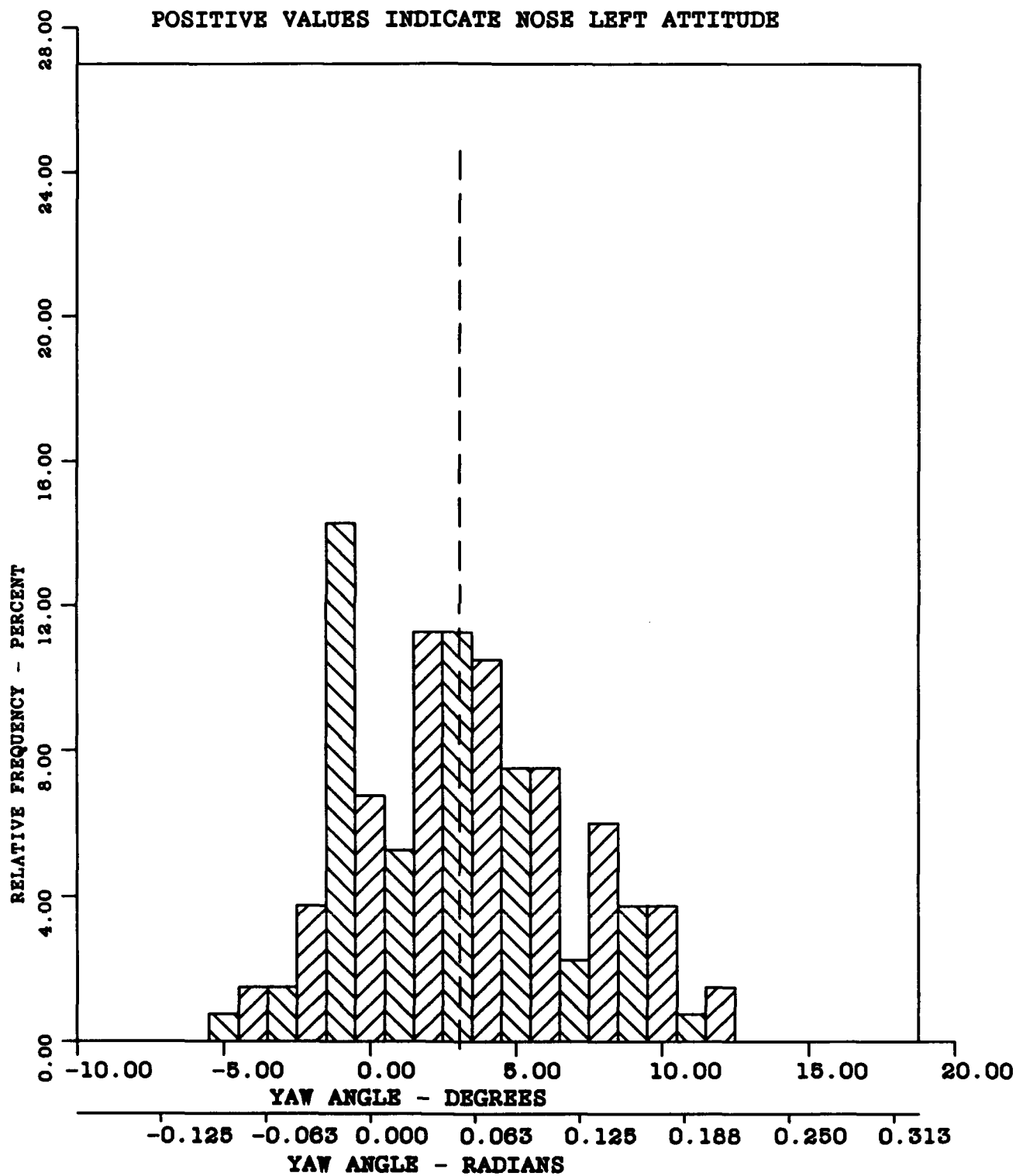


FIGURE O-48 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL S-3A AIRCRAFT

USS ENTERPRISE (CVN-65)

NIGHT LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (0.061 RADIANS)

N-133

 $\bar{X}$ -3.06 DEGREES (0.053 RADIANS)

A3-0.27

S- 3.68 DEGREES (0.064 RADIANS)

A4-2.45

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

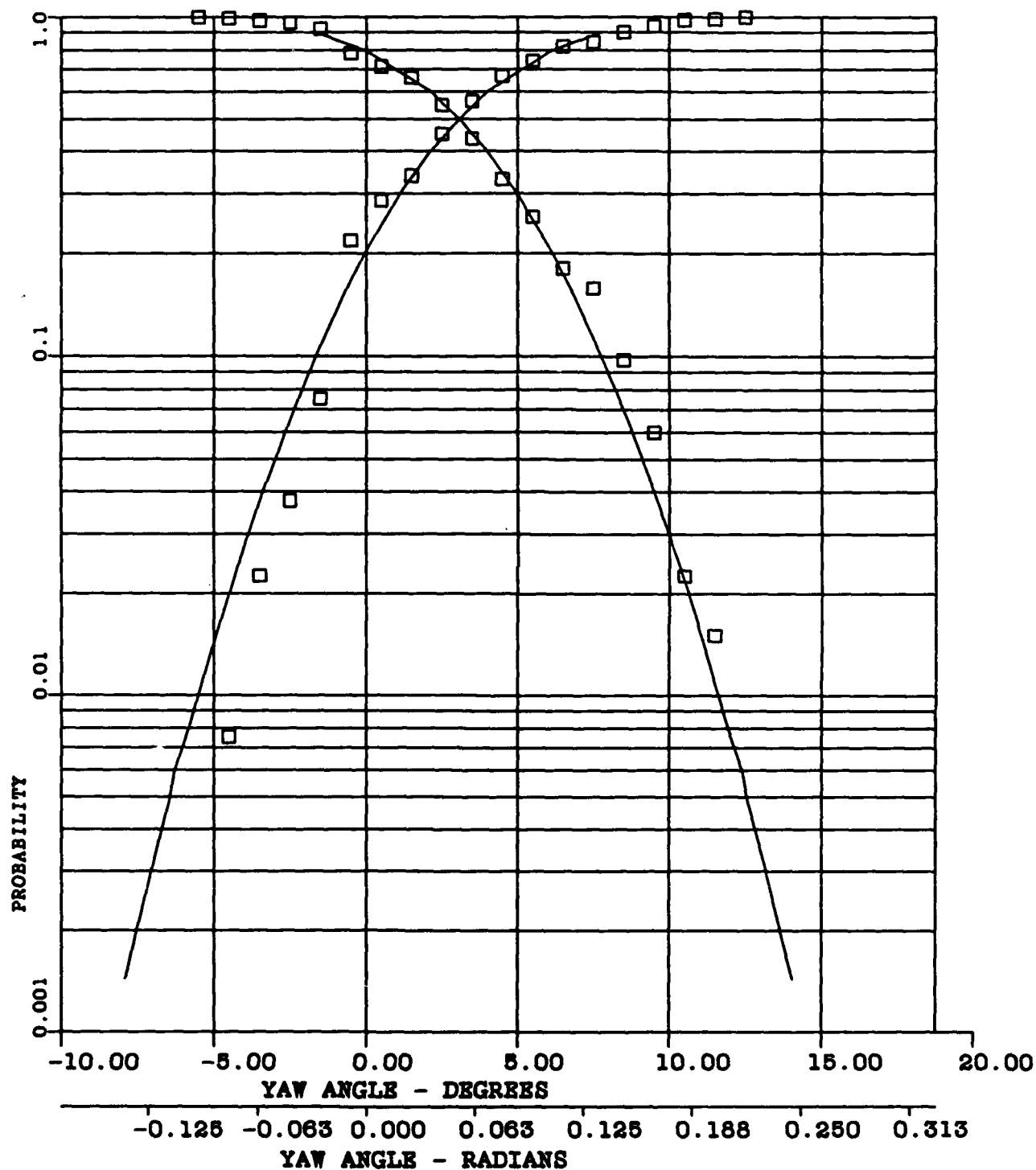


FIGURE O-49 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX P**

**TA-3B AIRCRAFT**

**DAY CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

Appendix F:

Frequency and Probability Distributions,  
TA-38 Aircraft, Day Landings

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MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -24.34 KNOTS (12.52 METRES/SEC)

A3-.31

S-1.87 KNOTS (.96 METRES/SEC)

A4-2.90

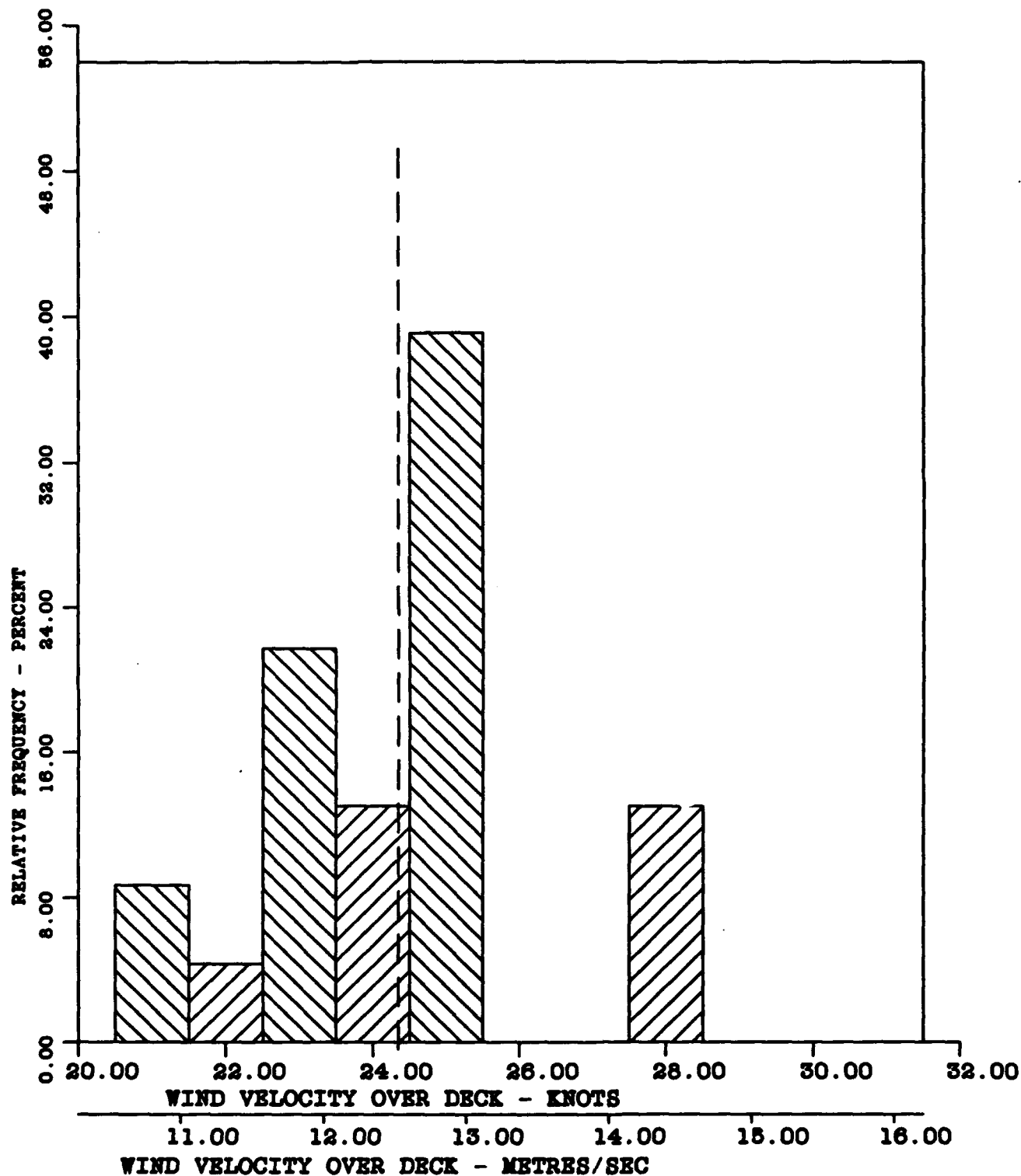


FIGURE P-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -24.34 KNOTS (12.52 METRES/SEC)

A3-.31

S-1.87 KNOTS (.96 METRES/SEC)

A4-2.90

CURVE FITTED - NORMAL

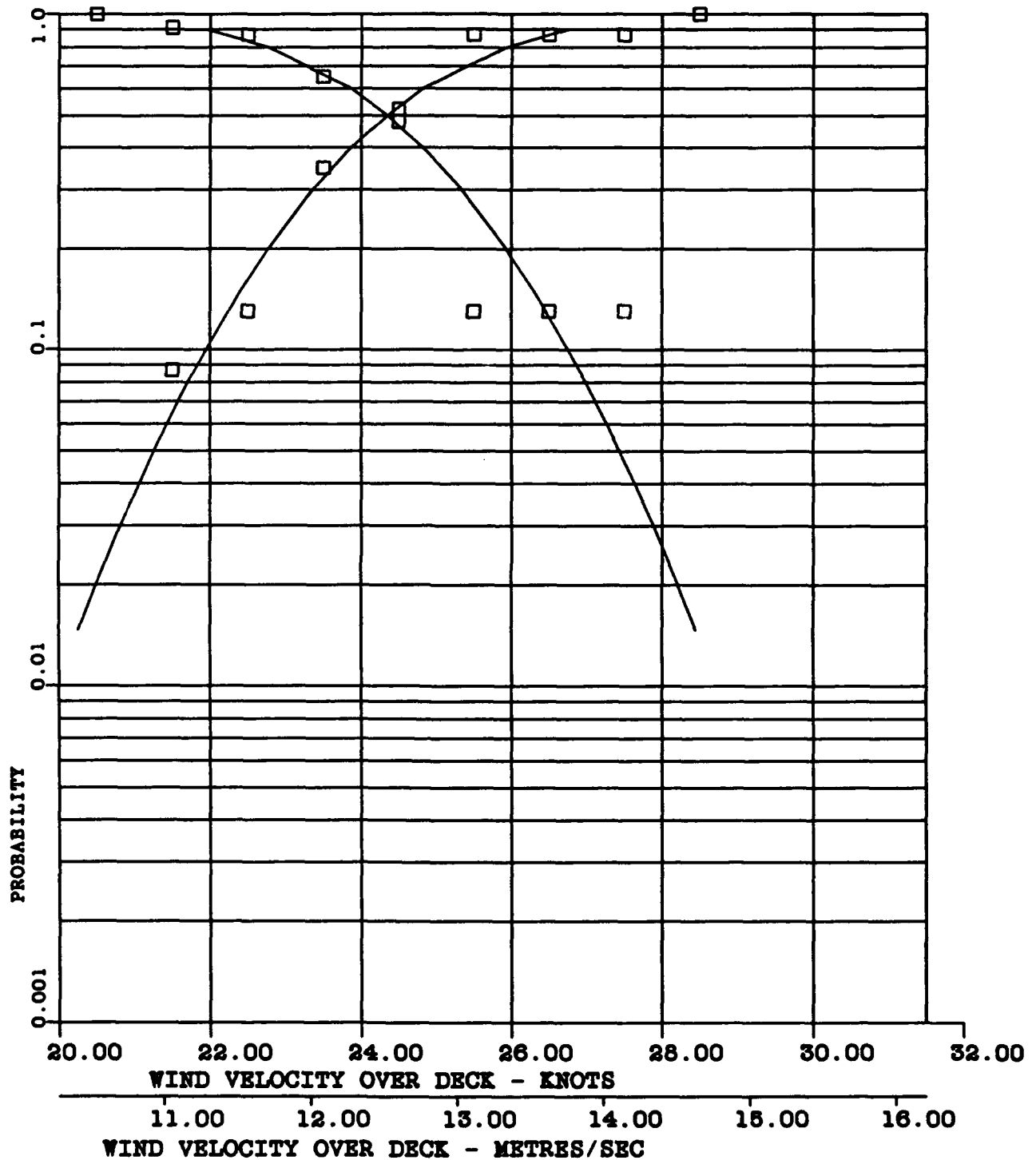


FIGURE P-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -124.83 KNOTS (64.21 METRES/SEC)

A3-.39

S-4.47 KNOTS (2.30 METRES/SEC)

A4-2.27

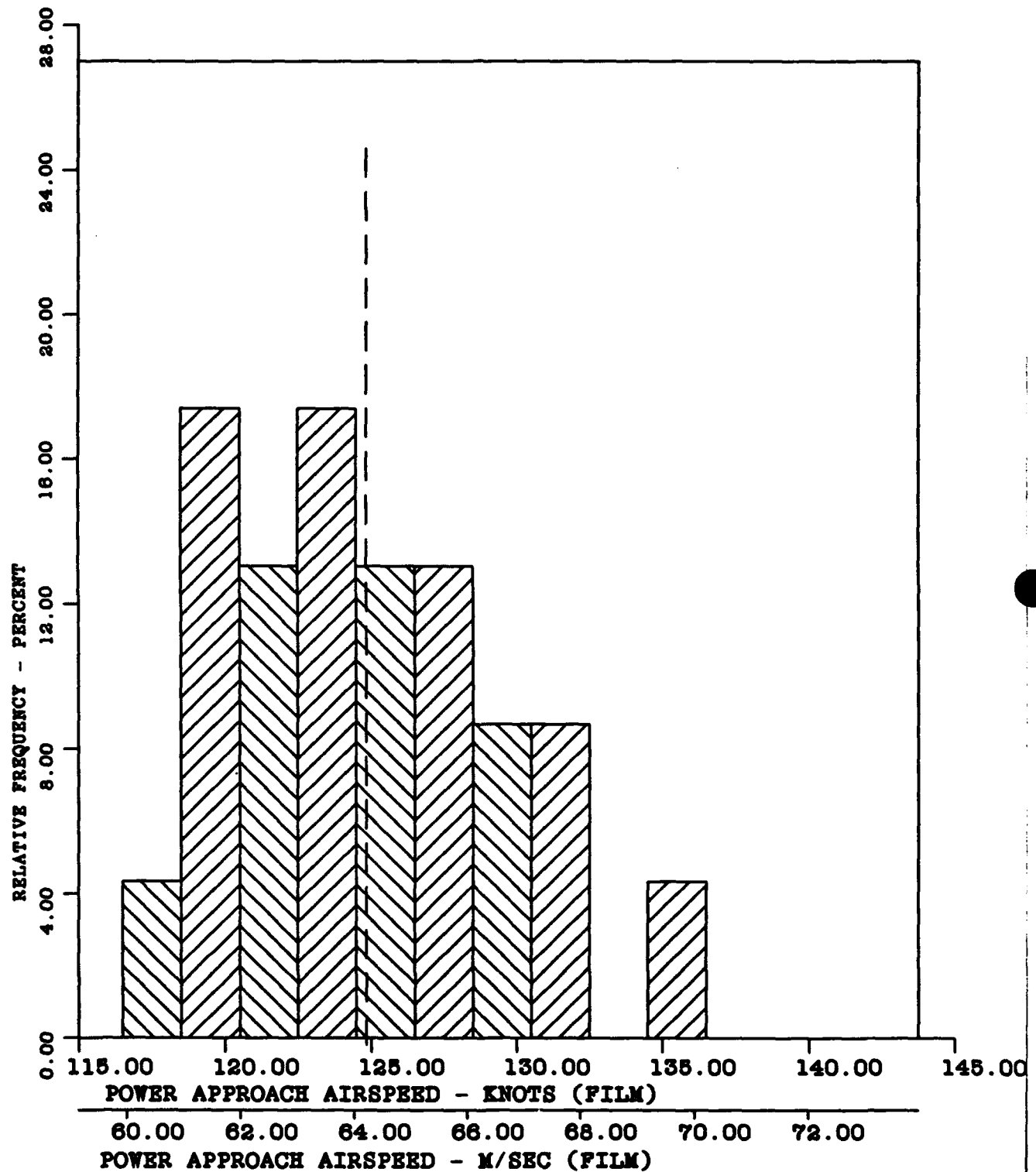


FIGURE P-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -124.83 KNOTS (64.21 METRES/SEC)

A3-.39

S-4.47 KNOTS (2.30 METRES/SEC)

A4-2.27

CURVE FITTED - NORMAL

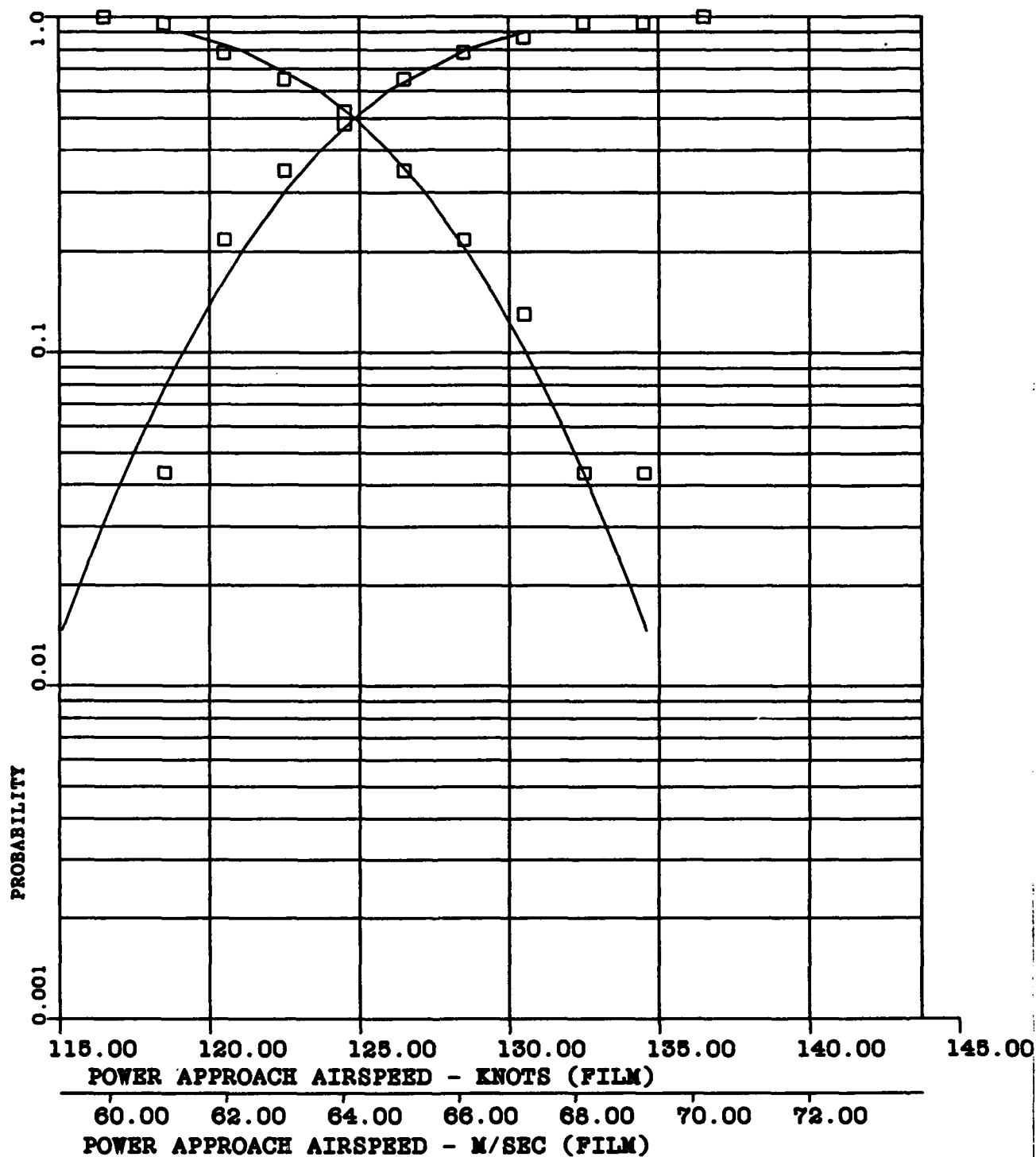


FIGURE P-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -17.16 FEET (5.23 METRES)

A3--.09

S-2.65 FEET (.81 METRES)

A4-2.09

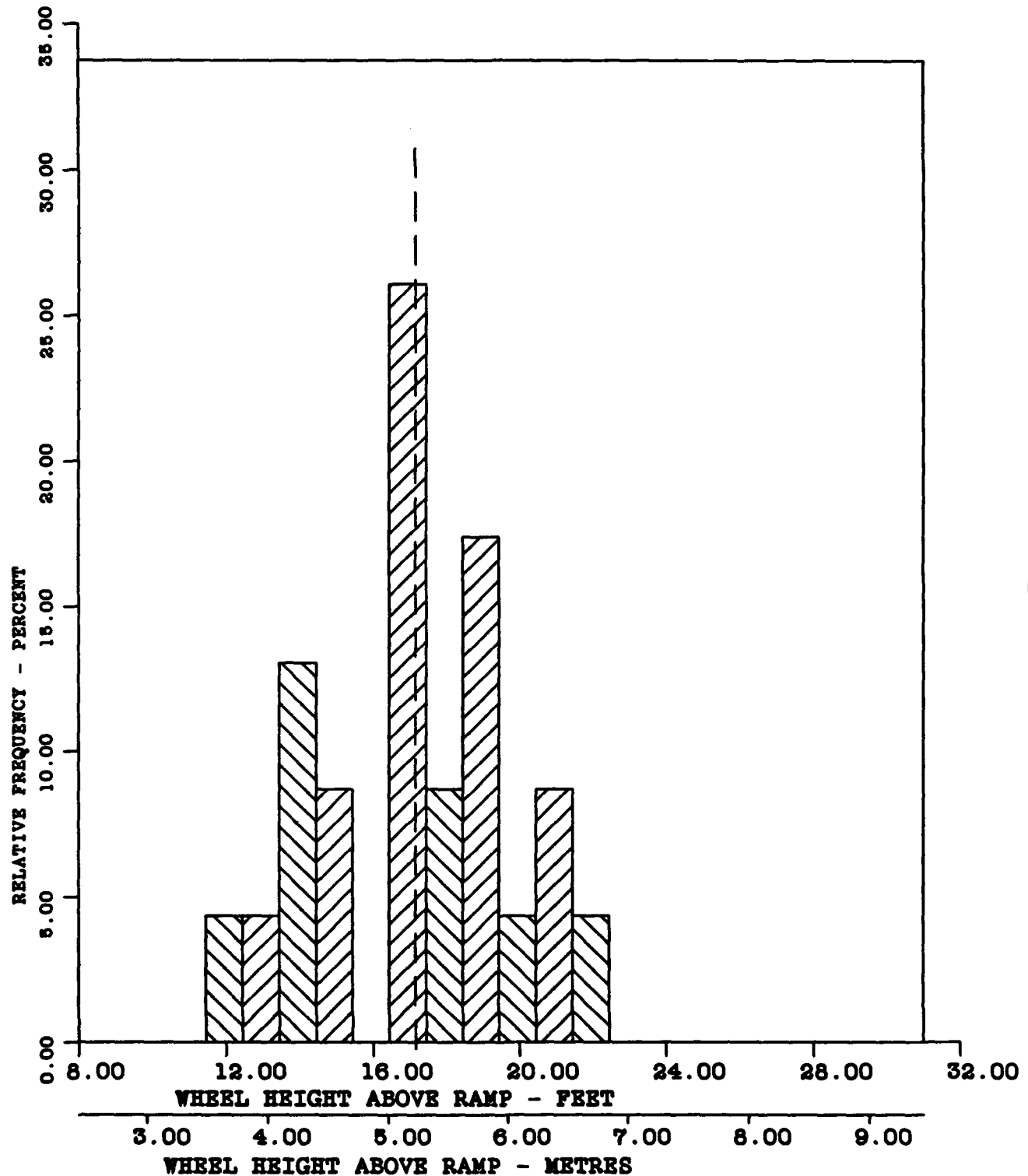


FIGURE P-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -17.16 FEET (5.23 METRES)

A3--.09

S-2.65 FEET (.81 METRES)

A4-2.09

CURVE FITTED - NORMAL

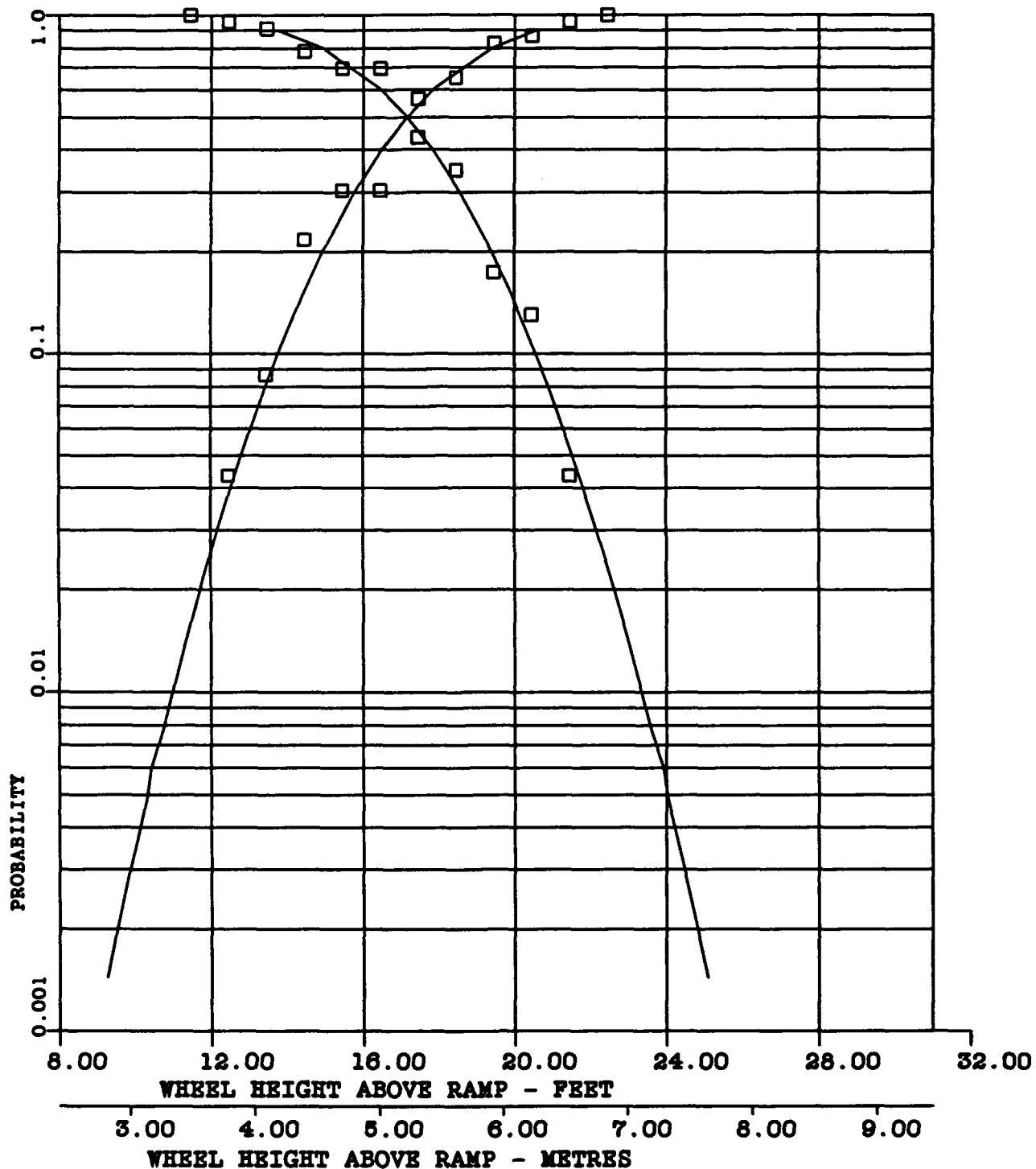


FIGURE P-6 PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-66)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -10.26 FEET/SEC (3.12 METRES/SEC)

A3-- .07

S-1.63 FEET/SEC (.49 METRES/SEC)

A4-2.14

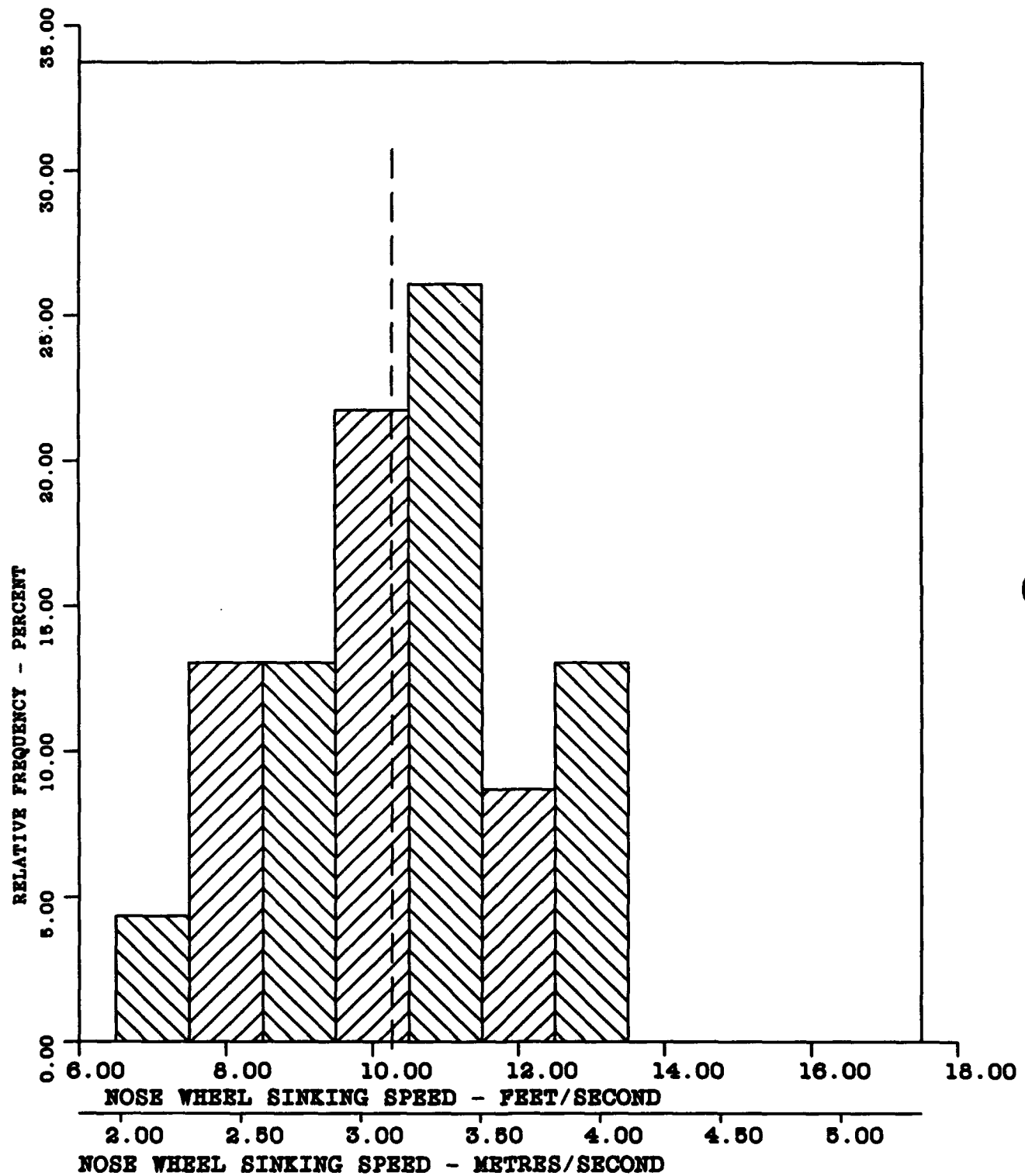


FIGURE P-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -10.26 FEET/SEC (3.12 METRES/SEC)

A3--.07

S-1.63 FEET/SEC (.49 METRES/SEC)

A4-2.14

CURVE FITTED - NORMAL

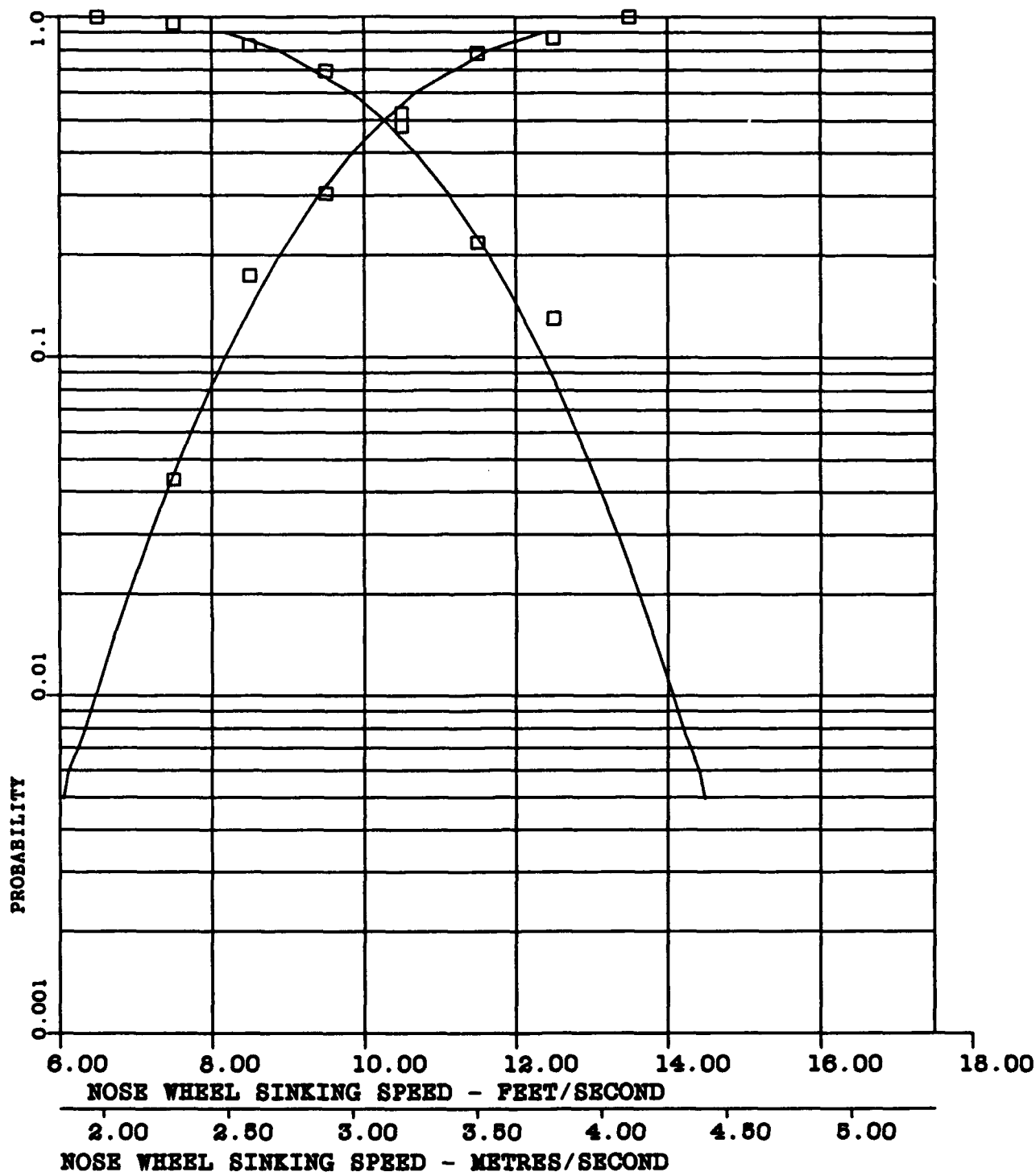


FIGURE P-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED



MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -9.85 FEET/SEC (3.00 METRES/SEC)

A3--.22

S-2.10 FEET/SEC (.64 METRES/SEC)

A4-2.35

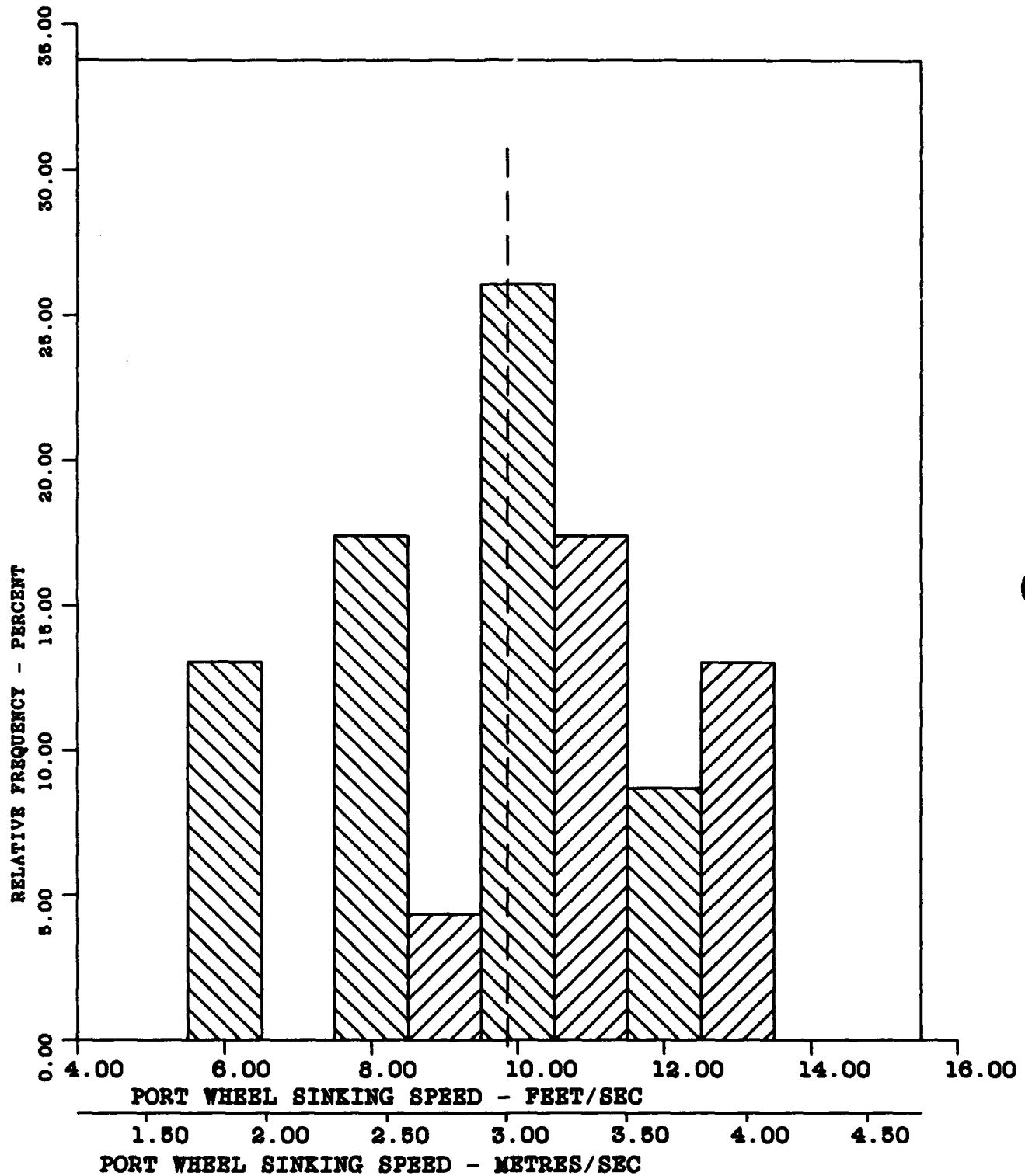


FIGURE P-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -9.85 FEET/SEC (3.00 METRES/SEC)

A3--.22

S-2.10 FEET/SEC (.64 METRES/SEC)

A4-2.35

CURVE FITTED - NORMAL

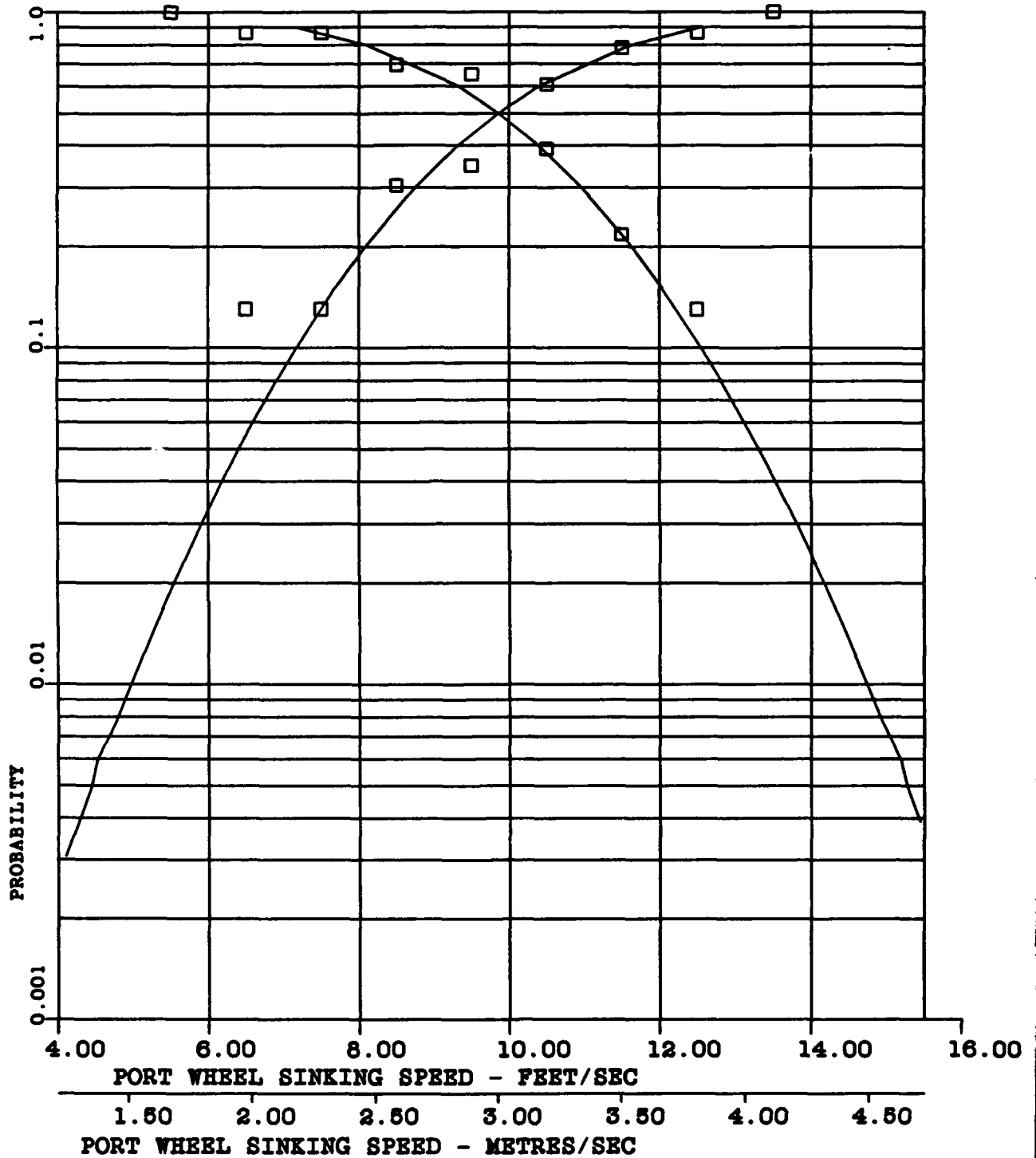


FIGURE P-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -9.98 FEET/SEC (3.04 METRES/SEC)

A3--.10

S-2.23 FEET/SEC (.68 METRES/SEC)

A4-2.71

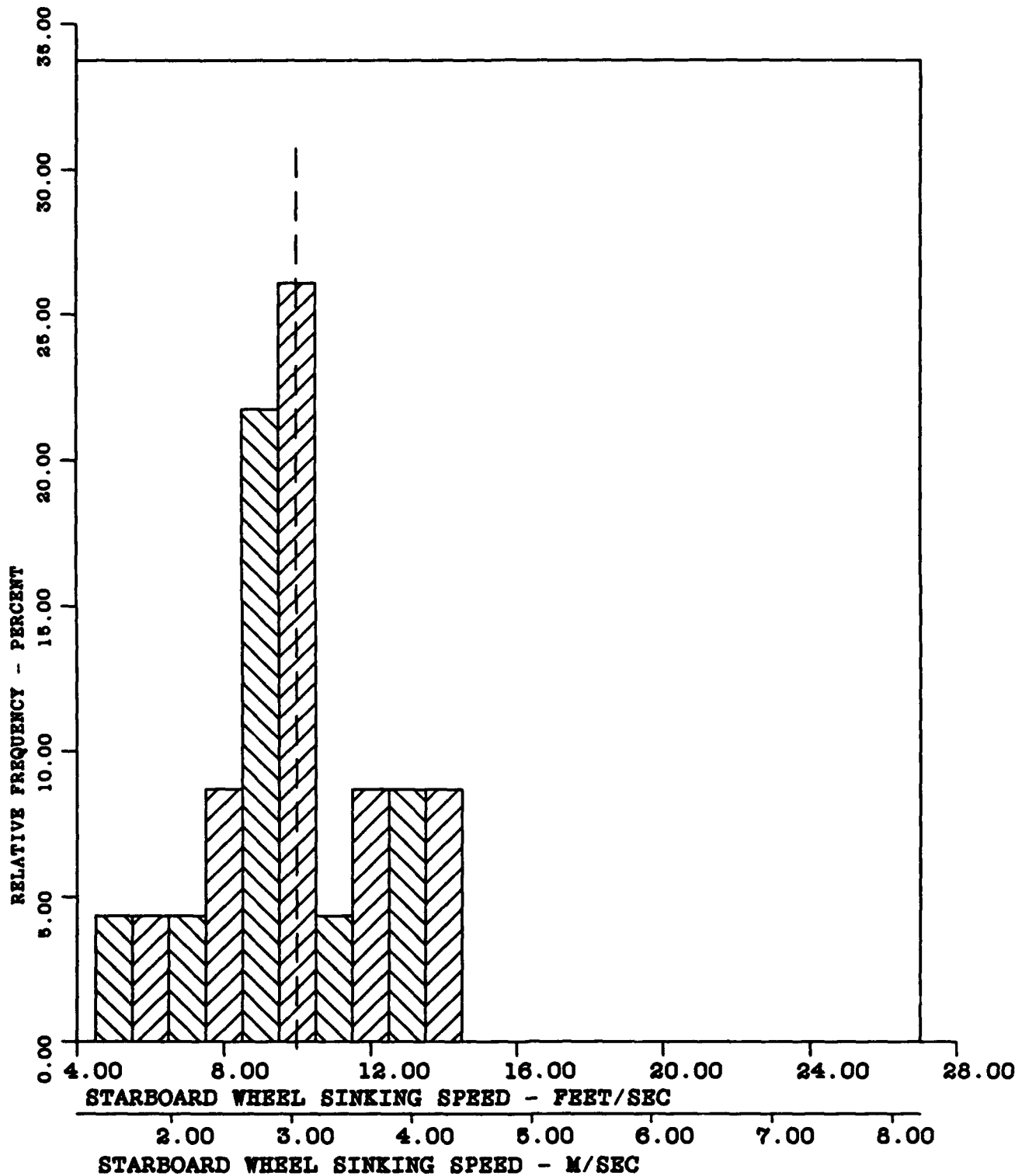


FIGURE P-11 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -9.98 FEET/SEC (3.04 METRES/SEC)

A3--.10

S-2.23 FEET/SEC (.68 METRES/SEC)

A4-2.71

CURVE FITTED - NORMAL

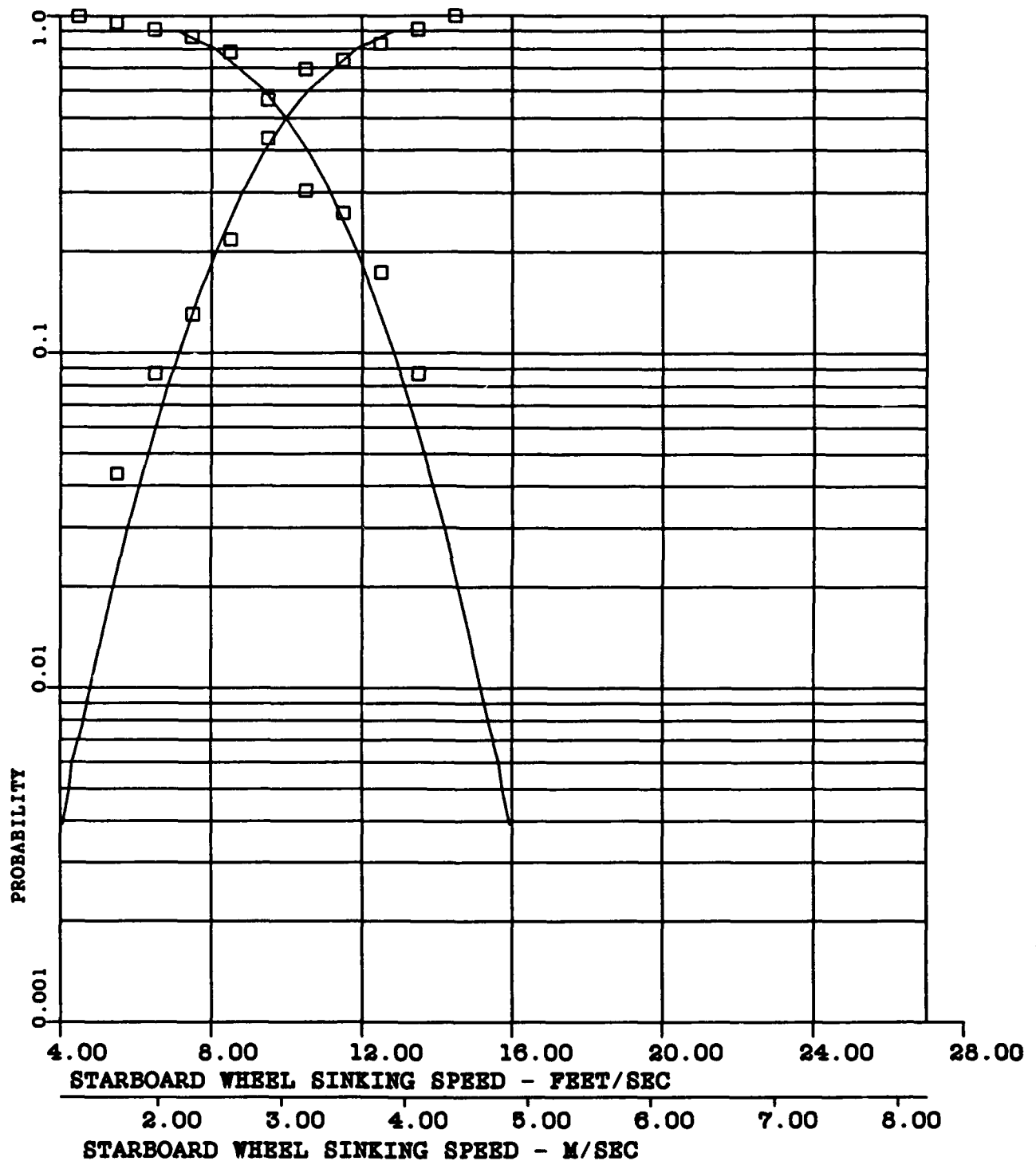


FIGURE P-12 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -9.98 FEET/SEC (3.04 METRES/SEC)

A3--.14

S-2.13 FEET/SEC (.64 METRES/SEC)

A4-2.57

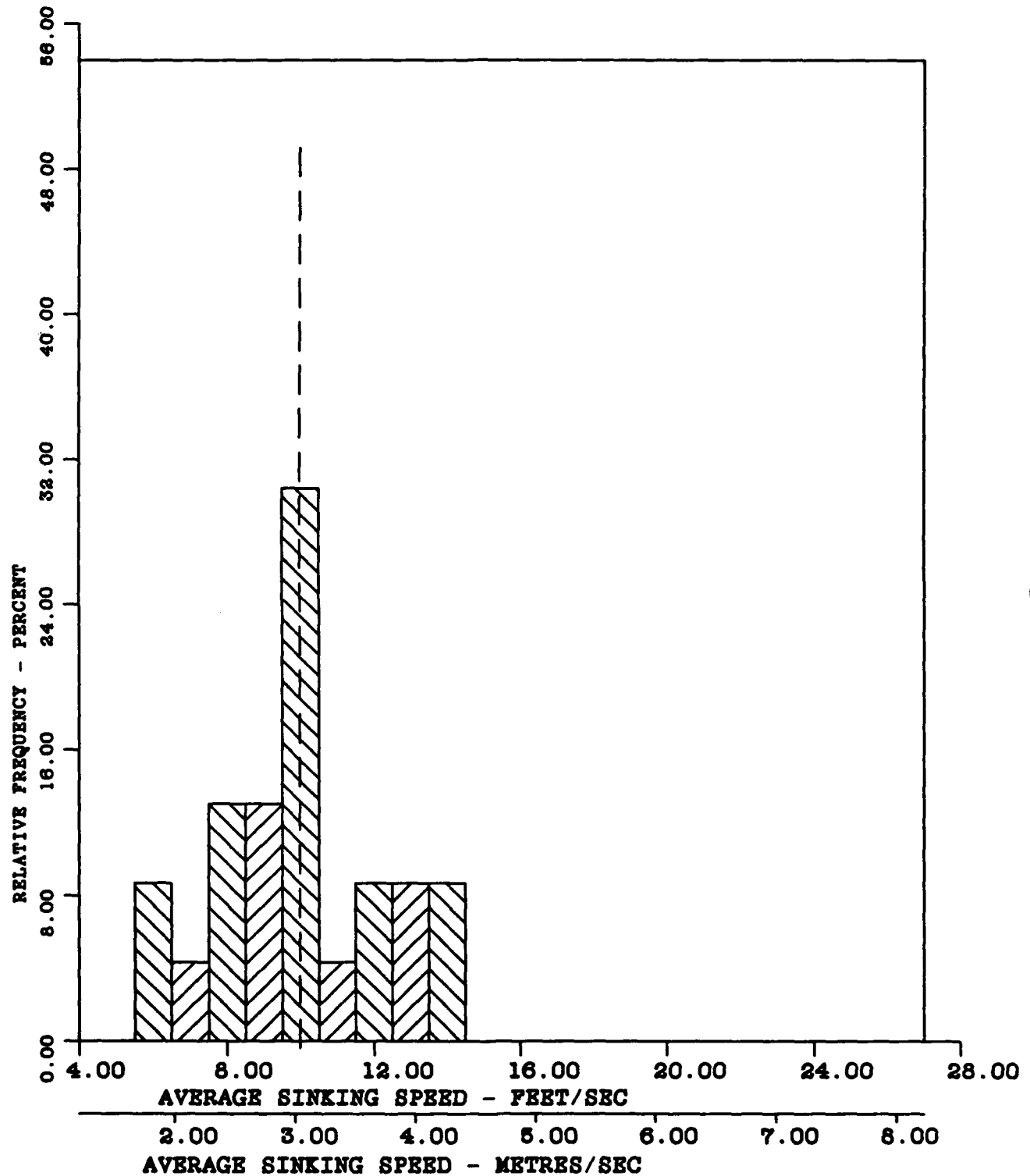


FIGURE P-13 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -9.98 FEET/SEC (3.04 METRES/SEC)

A3--.14

S-2.13 FEET/SEC (.64 METRES/SEC)

A4-2.57

CURVE FITTED - NORMAL

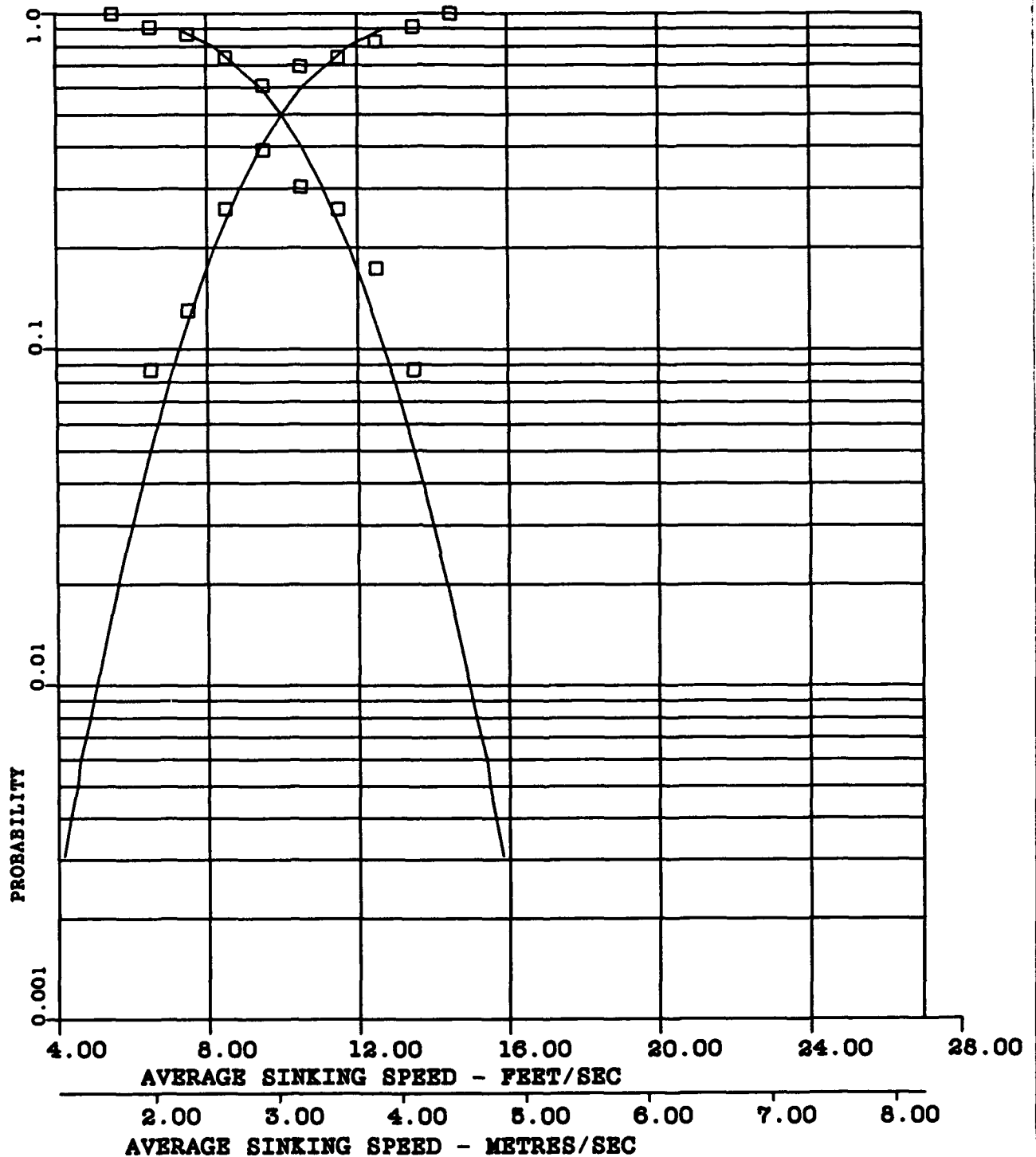


FIGURE P-14 PROBABILITY DISTRIBUTION OF AVERAGE SINKING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

PRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-2

 $\bar{X}$ -7.61 FEET/SEC (2.31 METRES/SEC)

A3-.00

S-2.50 FEET/SEC (.76 METRES/SEC)

A4-1.00

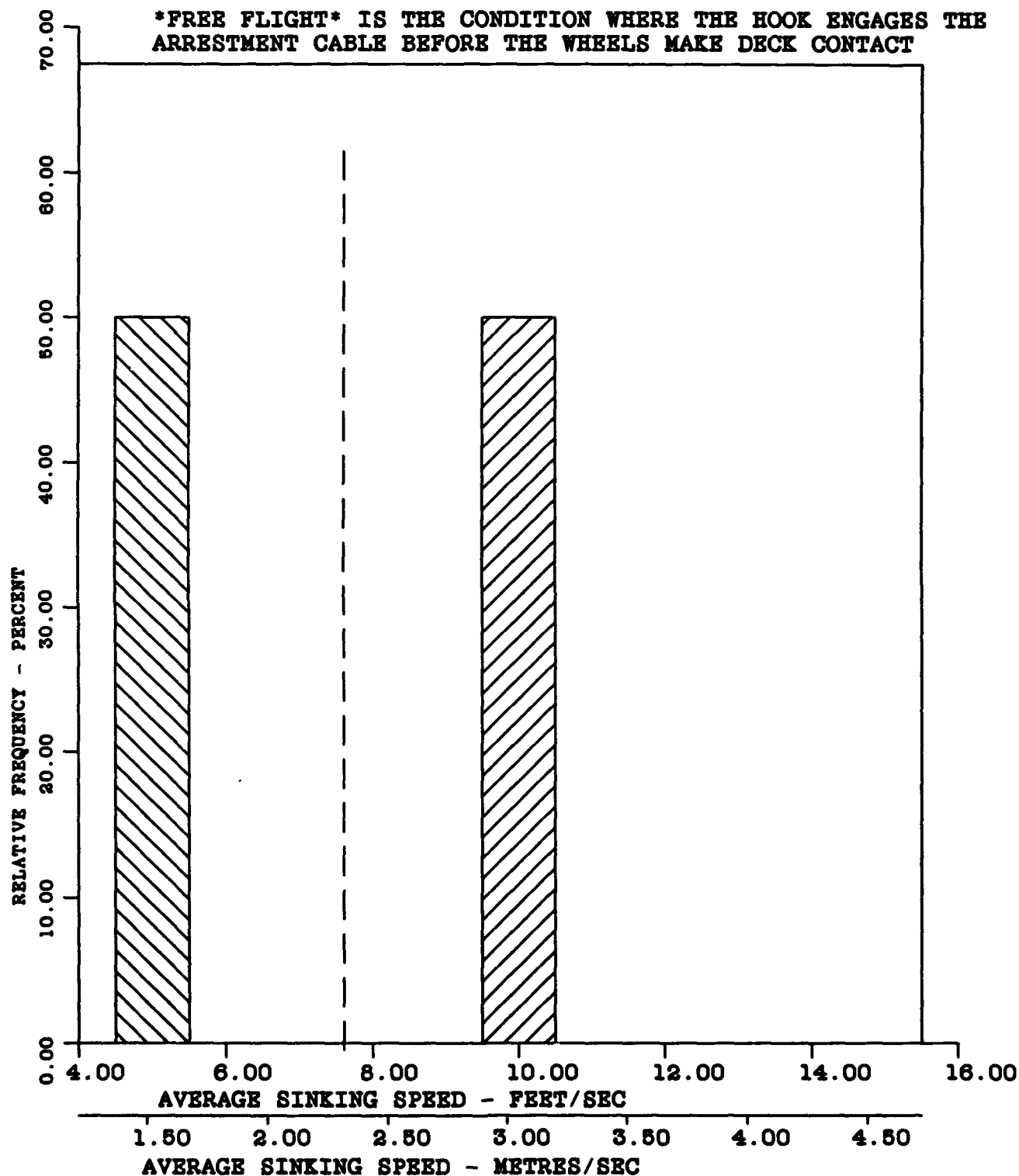


FIGURE P-15 FREQUENCY DISTRIBUTION OF AVERAGE SINKING SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-2

 $\bar{X}$ -7.61 FEET/SEC (2.31 METRES/SEC)

A3-.00

S-2.50 FEET/SEC (.76 METRES/SEC)

A4-1.00

CURVE FITTED - NORMAL

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

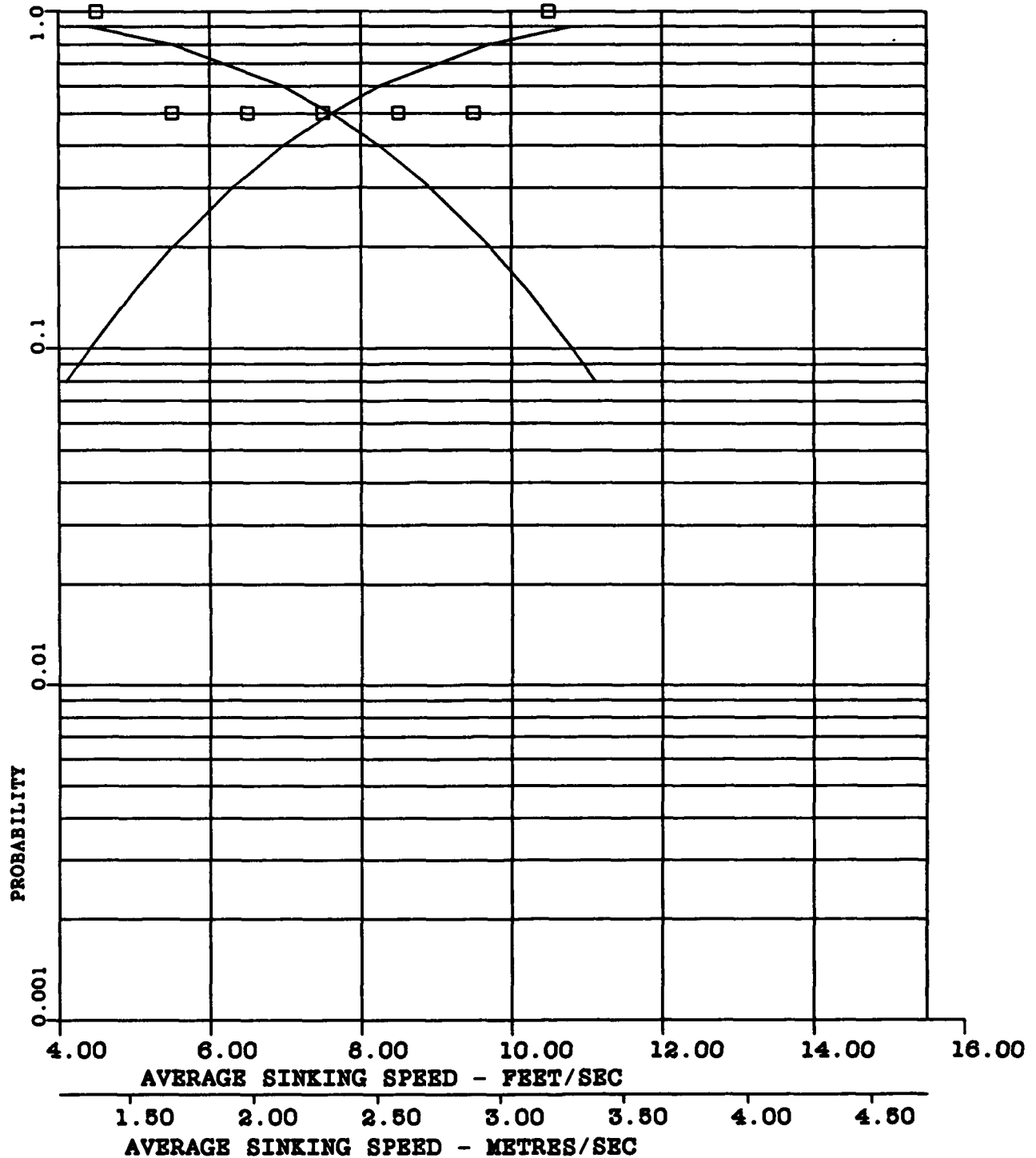


FIGURE P-16 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT



MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -1.09

S-.10

A3-.17

A4-2.27

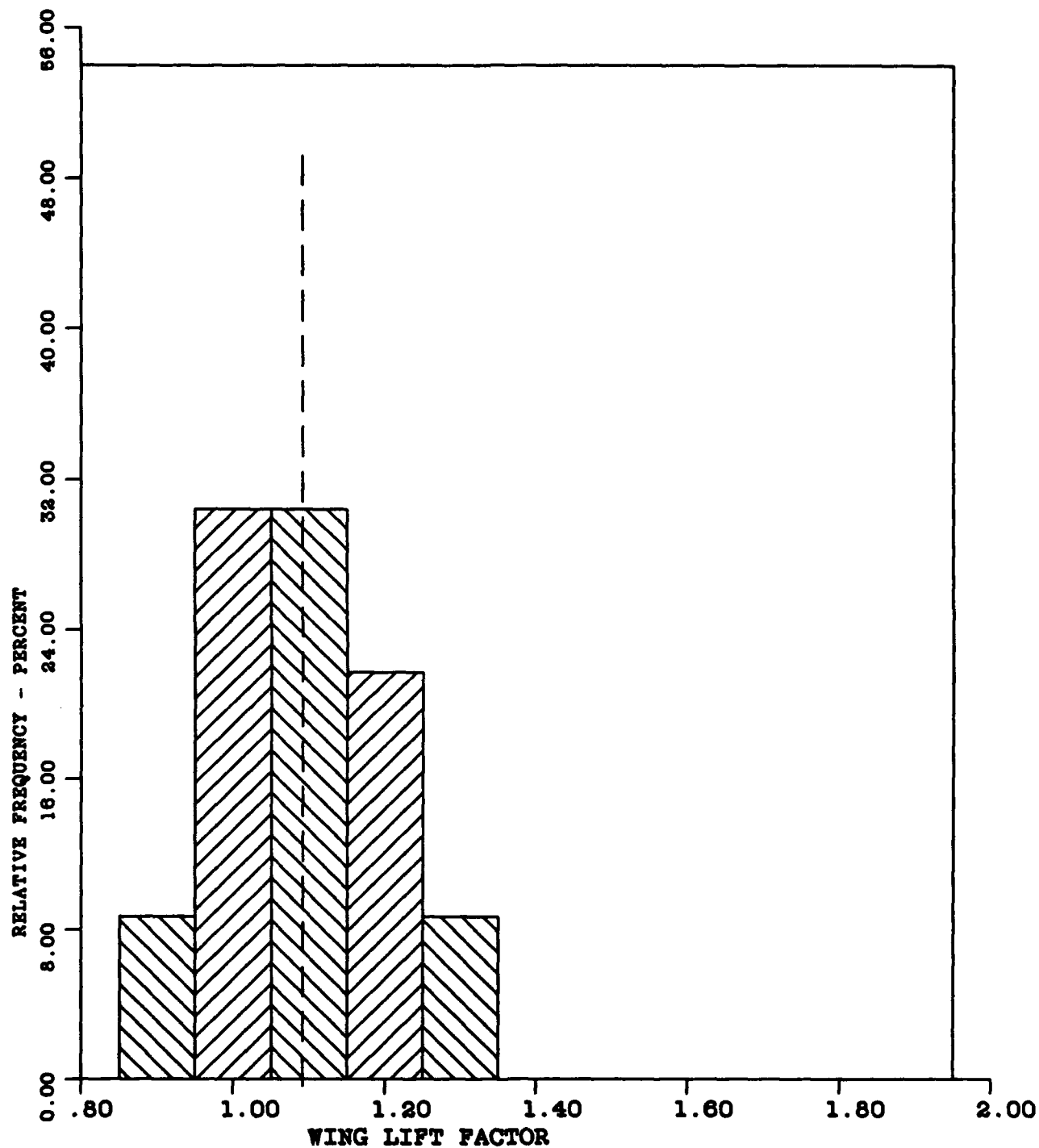


FIGURE P-17 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -1.09

S-.10

A3-.17

A4-2.27

CURVE FITTED - NORMAL

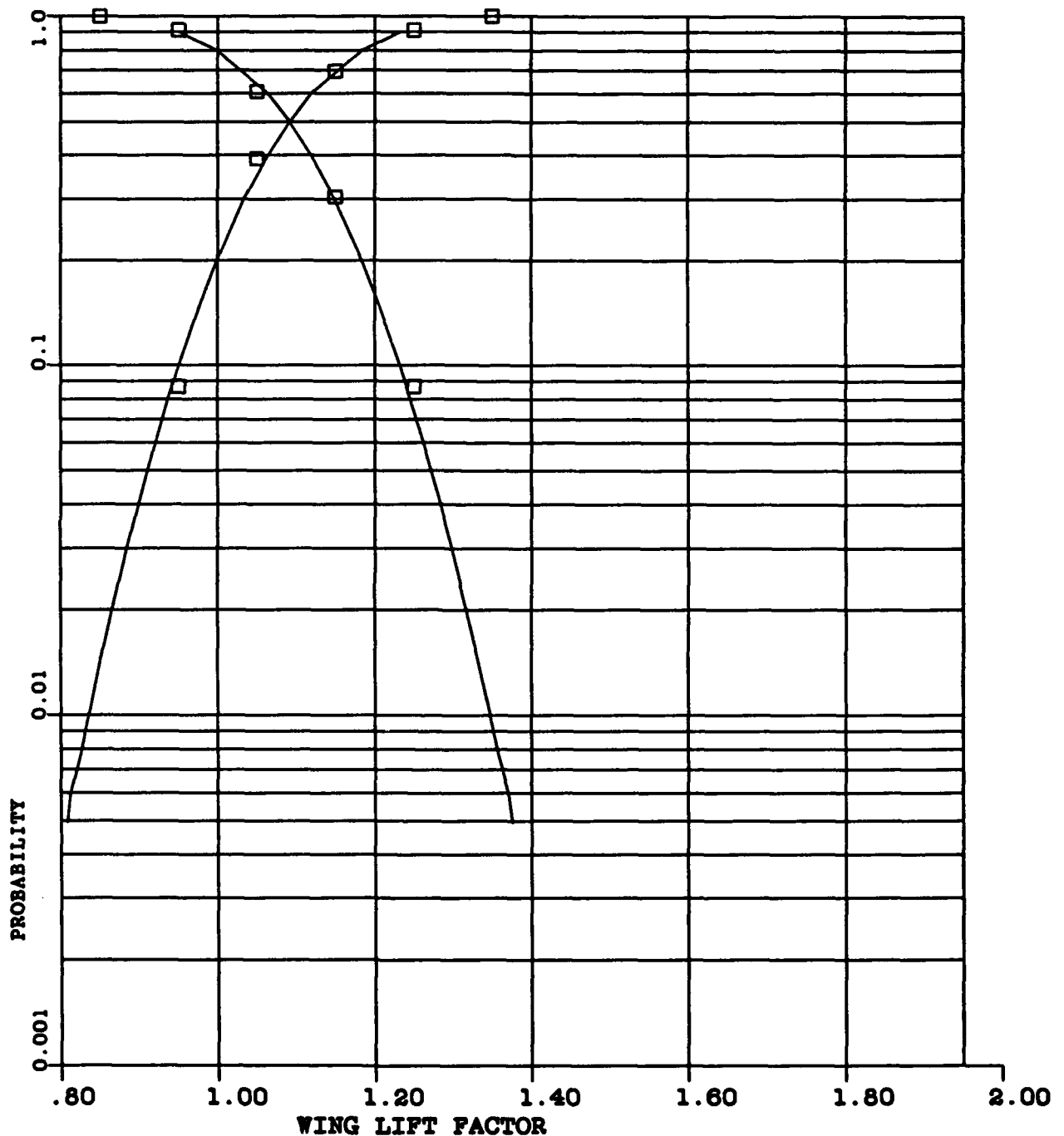


FIGURE P-18 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -3.10 DEGREES (.054 RADIANS)

A3-.17

S-1.21 DEGREES (.021 RADIANS)

A4-2.70

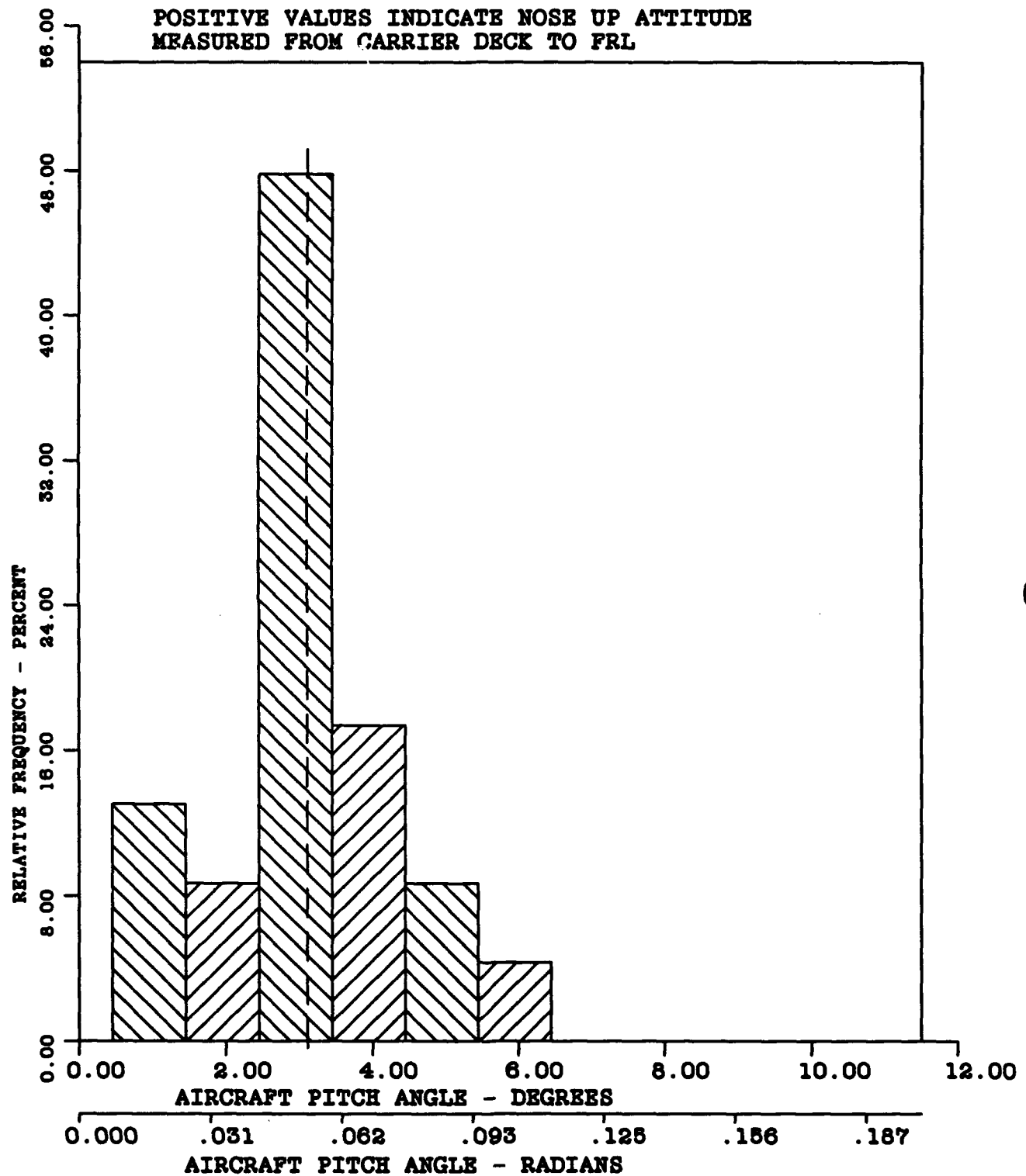


FIGURE P-19 FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -3.10 DEGREES (.084 RADIANS)

A3-.17

S-1.21 DEGREES (.021 RADIANS)

A4-2.70

CURVE FITTED - NORMAL

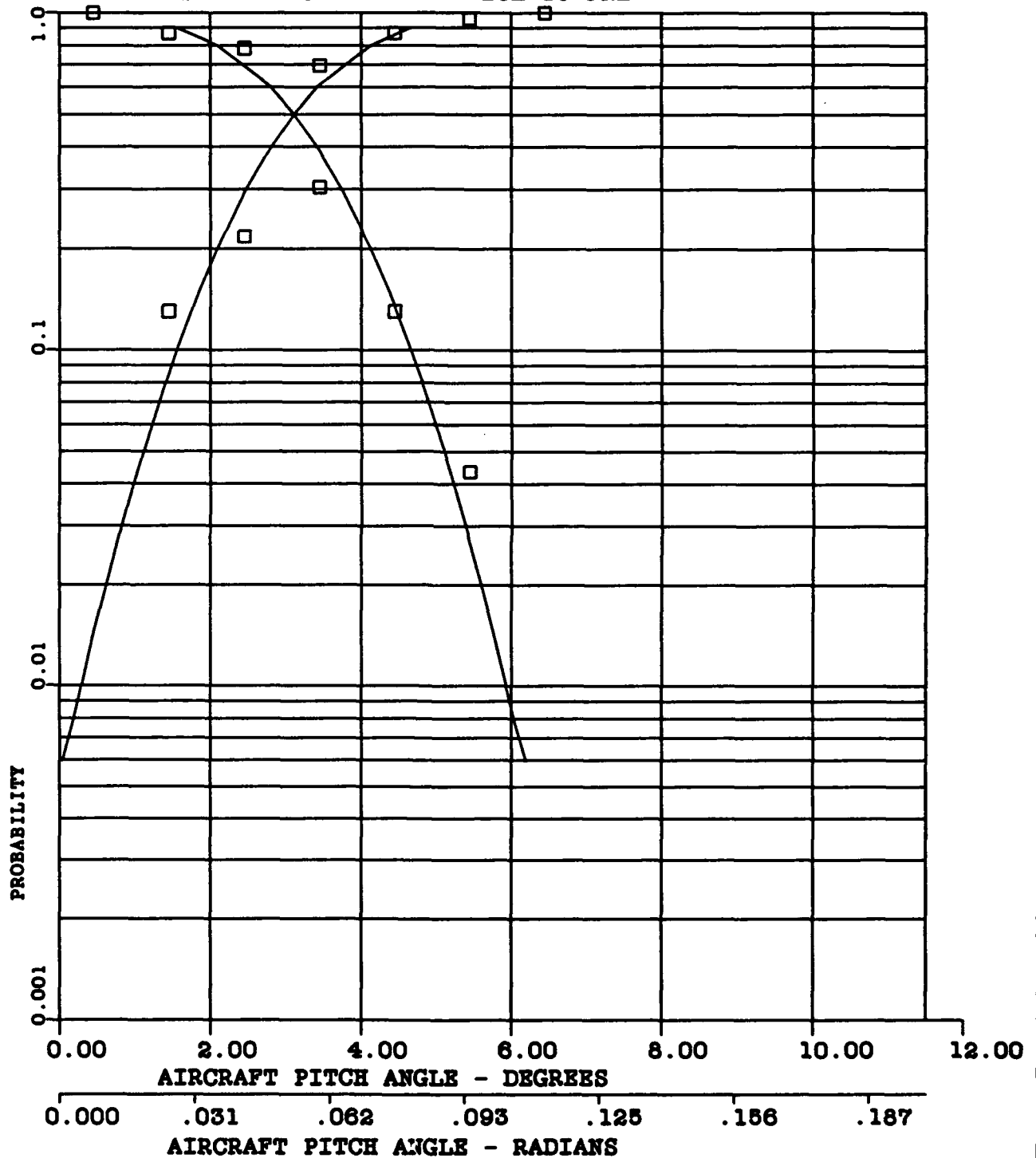
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE P-20 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -2.93 DEGREES (.051 RADIANS)

A3-.51

S-1.06 DEGREES (.018 RADIANS)

A4-2.74

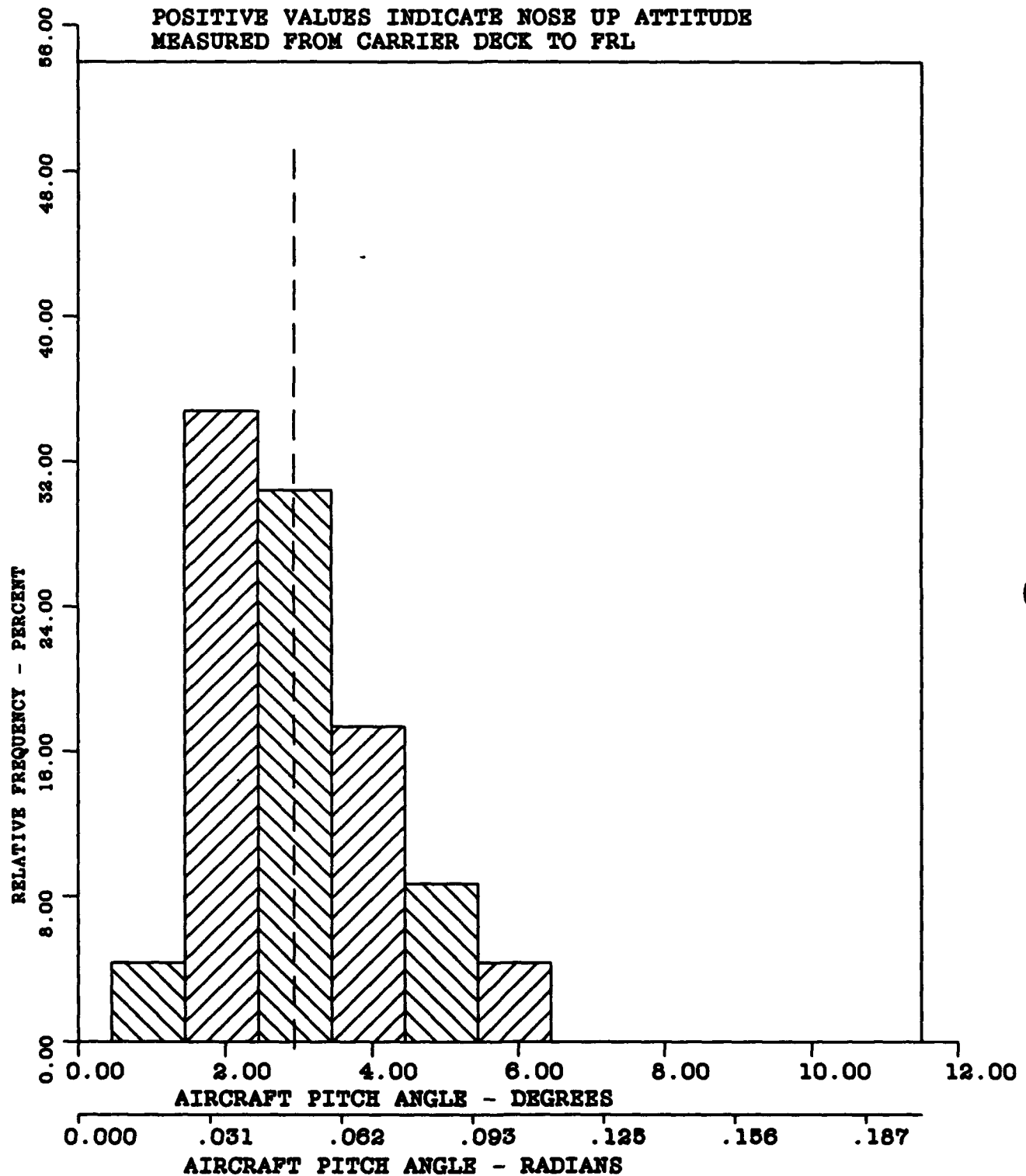


FIGURE P-21 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23  $\bar{X}$ -2.93 DEGREES (.051 RADIANS)

A3-.51

S-1.06 DEGREES (.018 RADIANS)

A4-2.74

CURVE FITTED - NORMAL

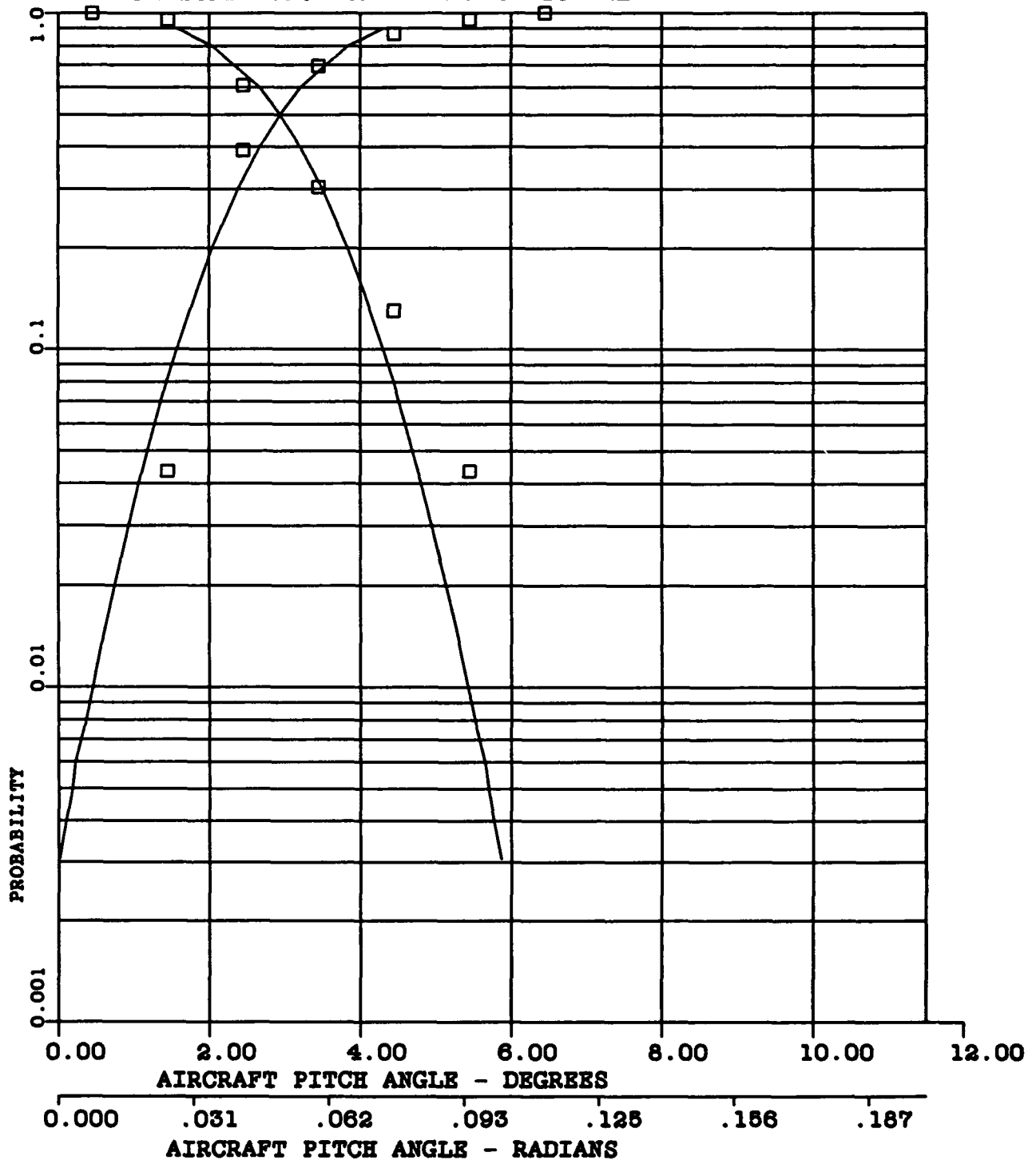
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE P-22 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-2

 $\bar{X}$ -4.45 DEGREES (.077 RADIANS)

A3-0.00

S-.05 DEGREES (.000 RADIANS)

A4-1.00

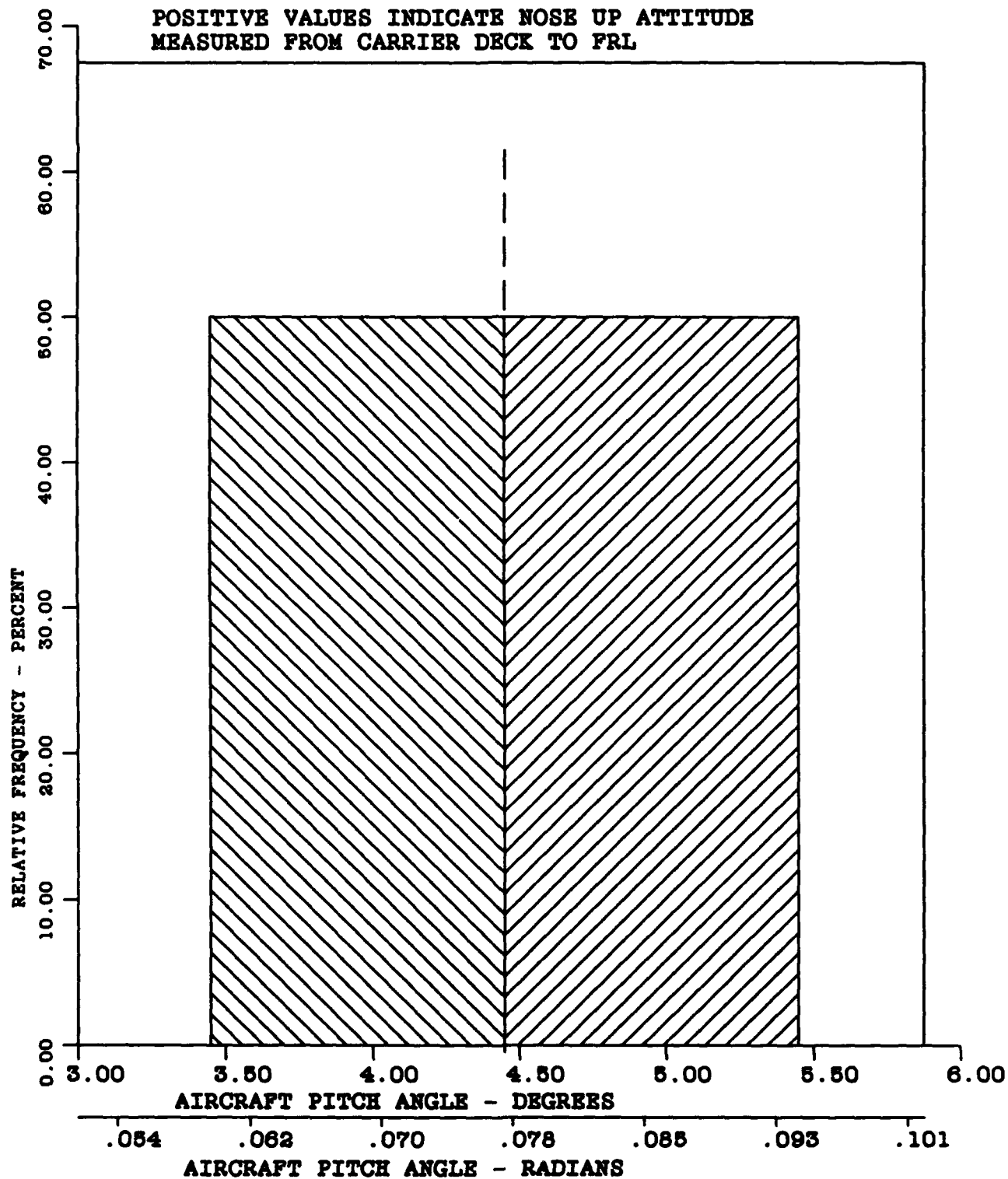


FIGURE P-23 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-2

 $\bar{X}$ -4.45 DEGREES (.077 RADIANS)

A3-0.00

S-.05 DEGREES (.000 RADIANS)

A4-1.00

CURVE FITTED - NORMAL

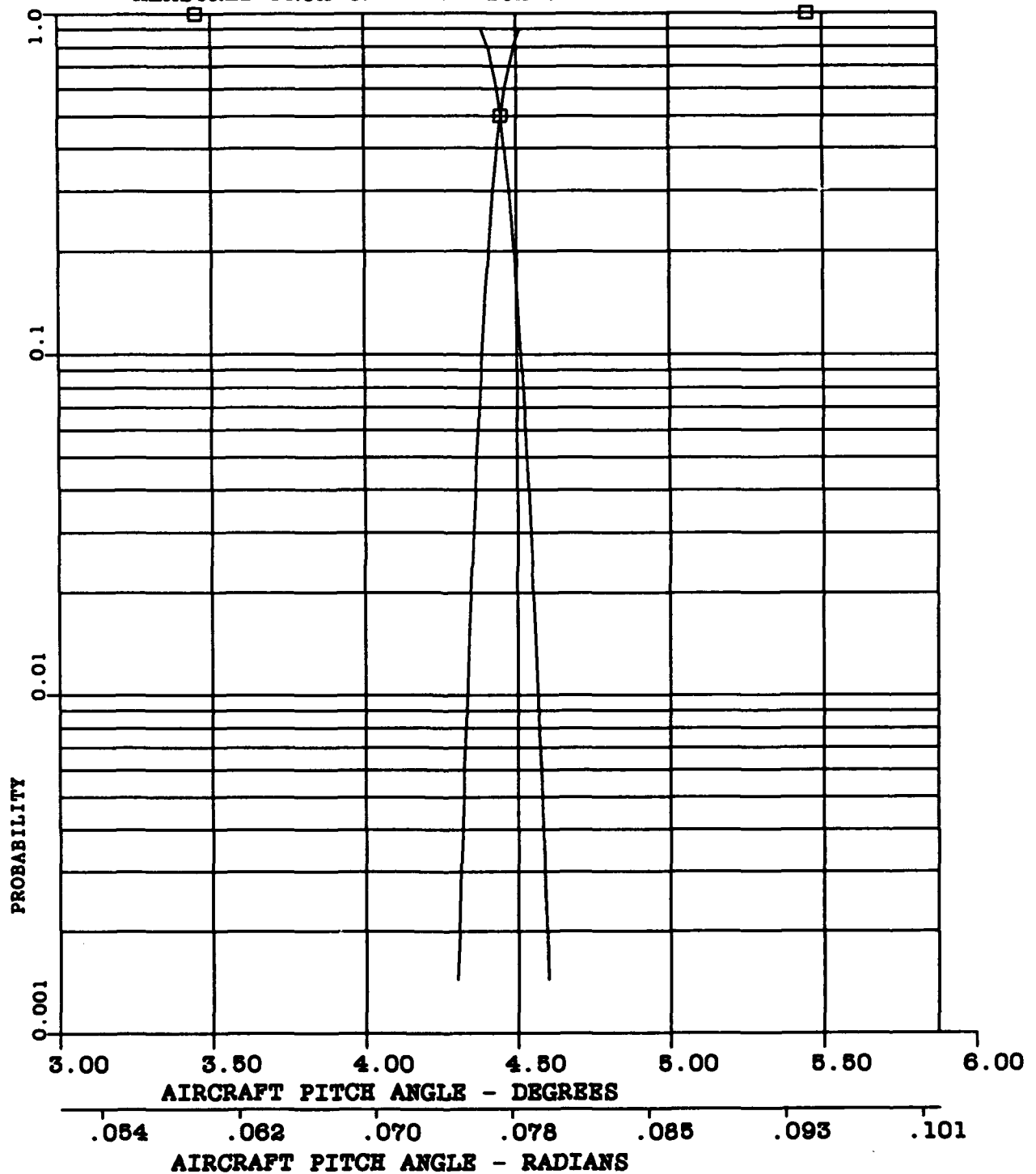
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

FIGURE P-24 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT



MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -1.00 DEGREES (-.017 RADIANS)

A3-.03

S-1.44 DEGREES (.025 RADIANS)

A4-2.74

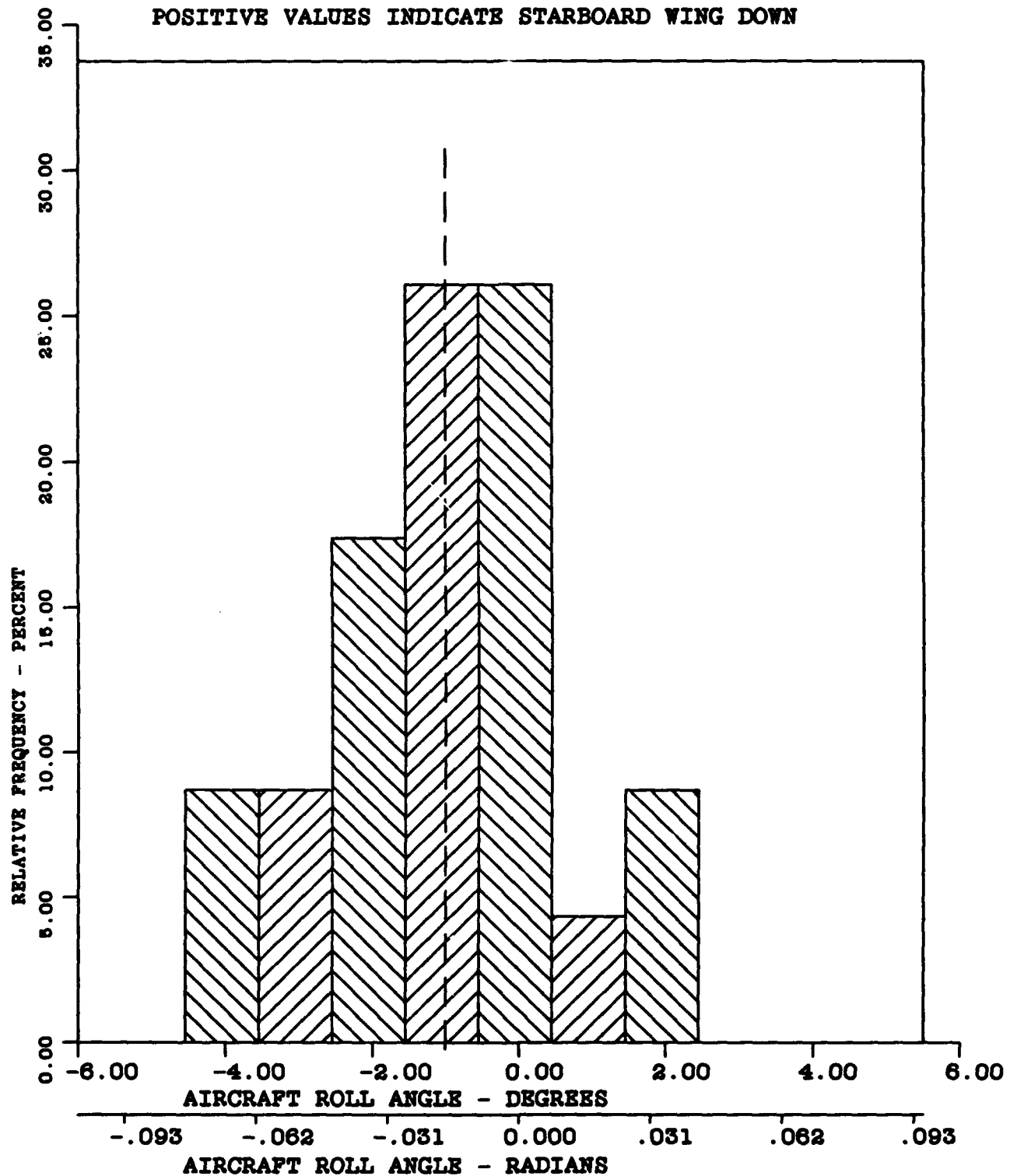


FIGURE P-25 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-66)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -1.00 DEGREES (-.017 RADIANS)

A3-.03

S-1.44 DEGREES (.025 RADIANS)

A4-2.74

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

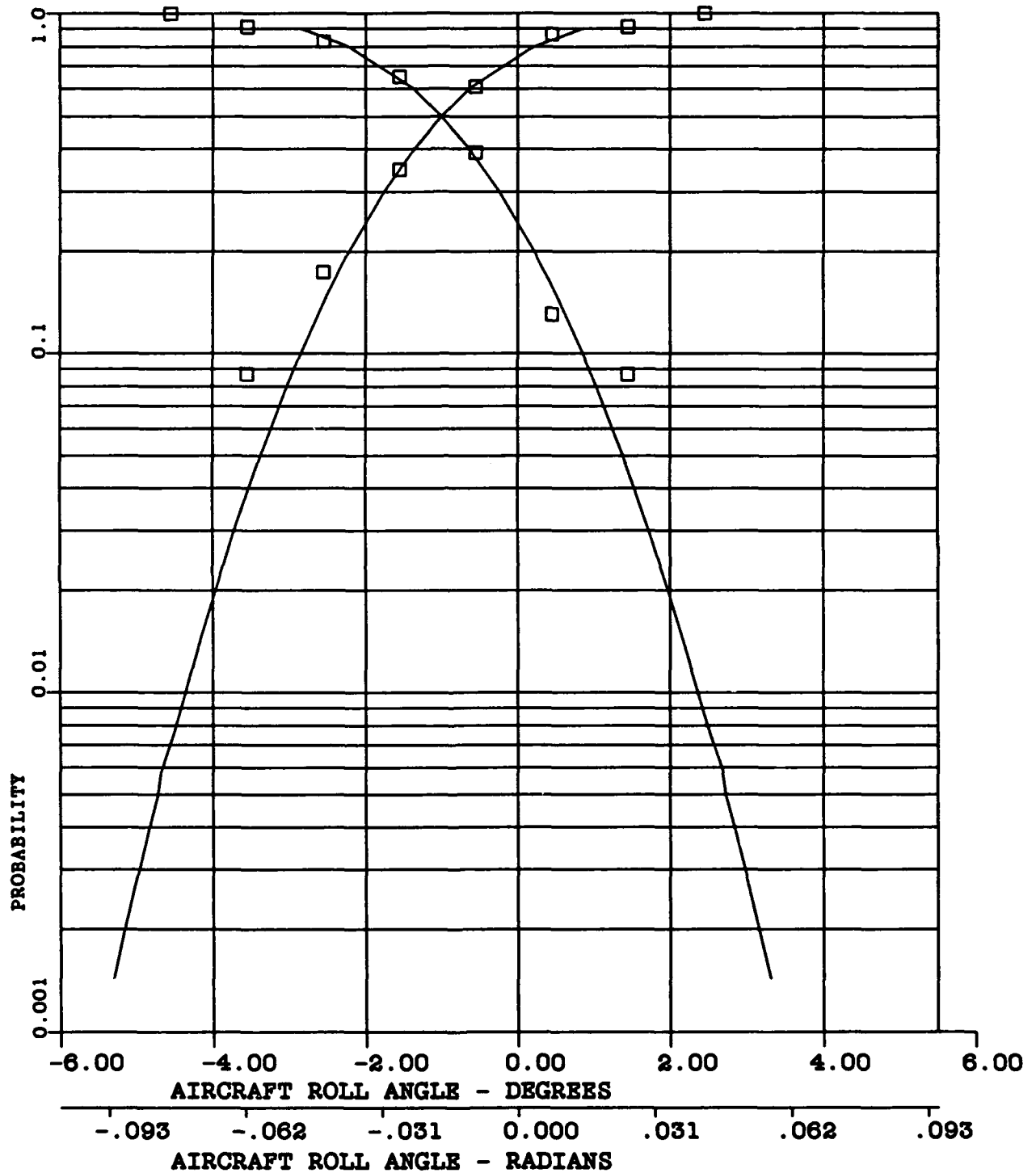


FIGURE P-26 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -.70 DEGREES (-.012 RADIANS)

A3--.43

S-1.65 DEGREES (.028 RADIANS)

A4-3.17

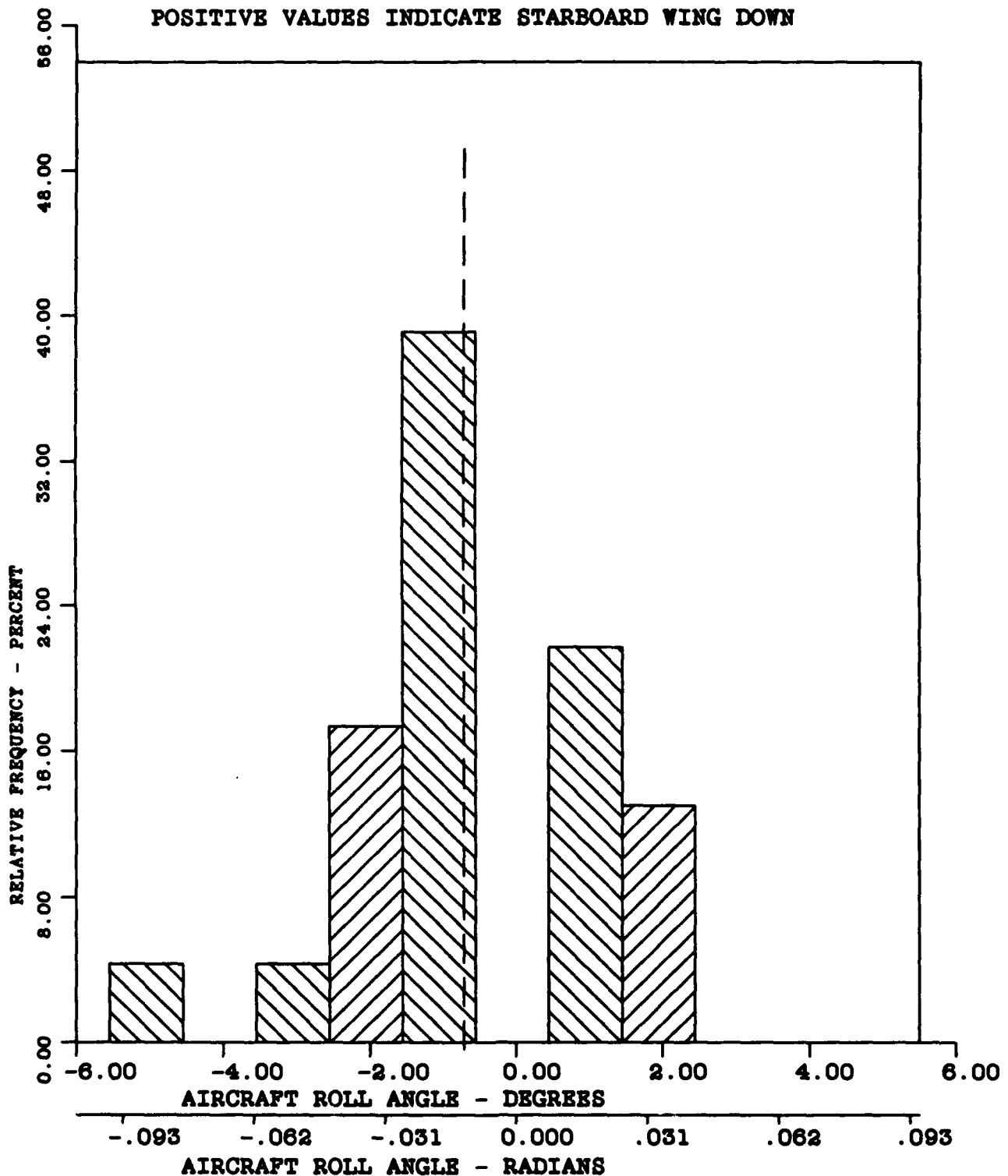


FIGURE P-27 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -.70 DEGREES (-.012 RADIANS)

A3--.43

S-1.65 DEGREES (.028 RADIANS)

A4-3.17

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

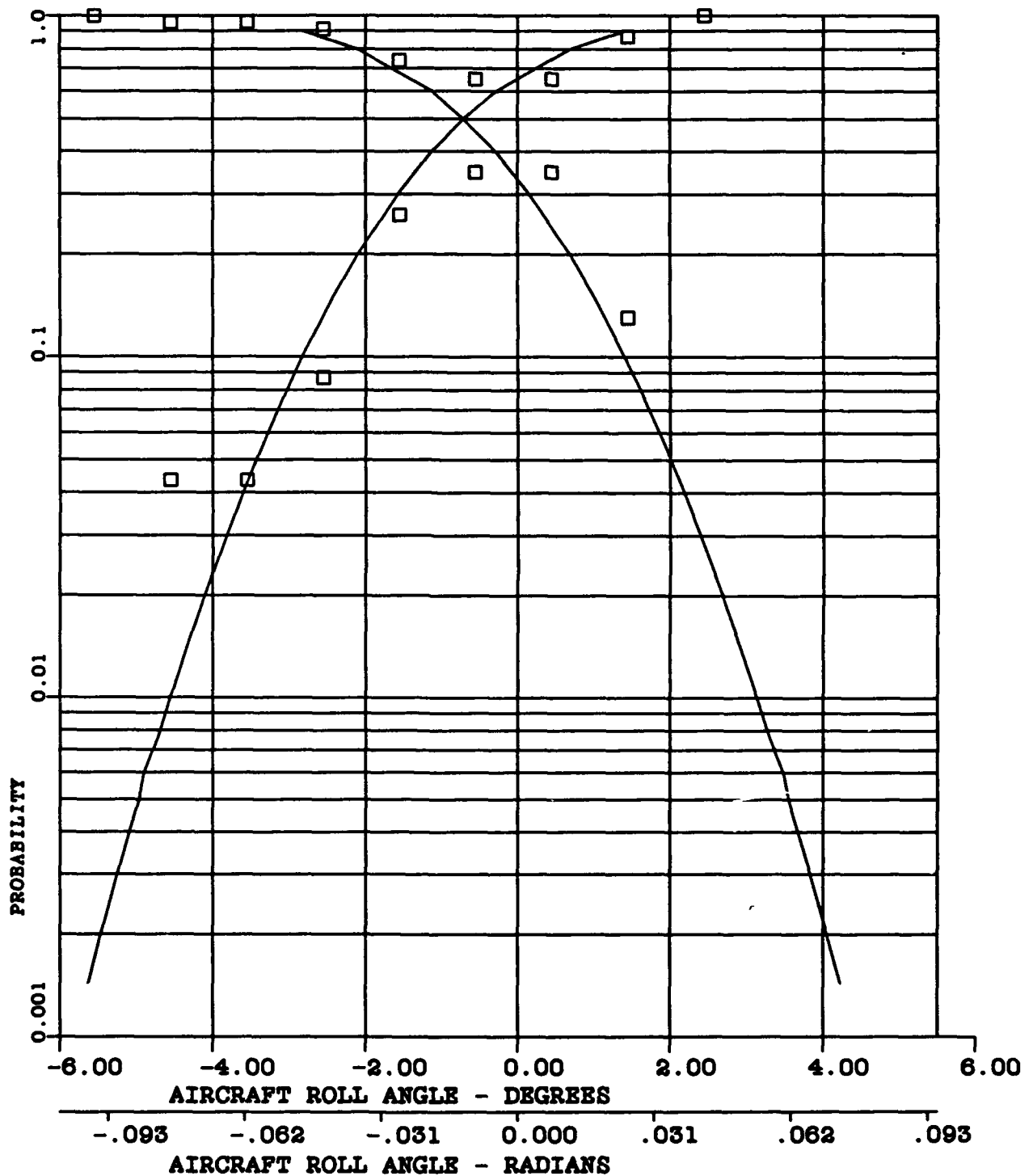


FIGURE P-28 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-2

 $\bar{X}$ -3.30 DEGREES (-.057 RADIANS)

A3-0.00

S-1.40 DEGREES (.024 RADIANS)

A4-1.00

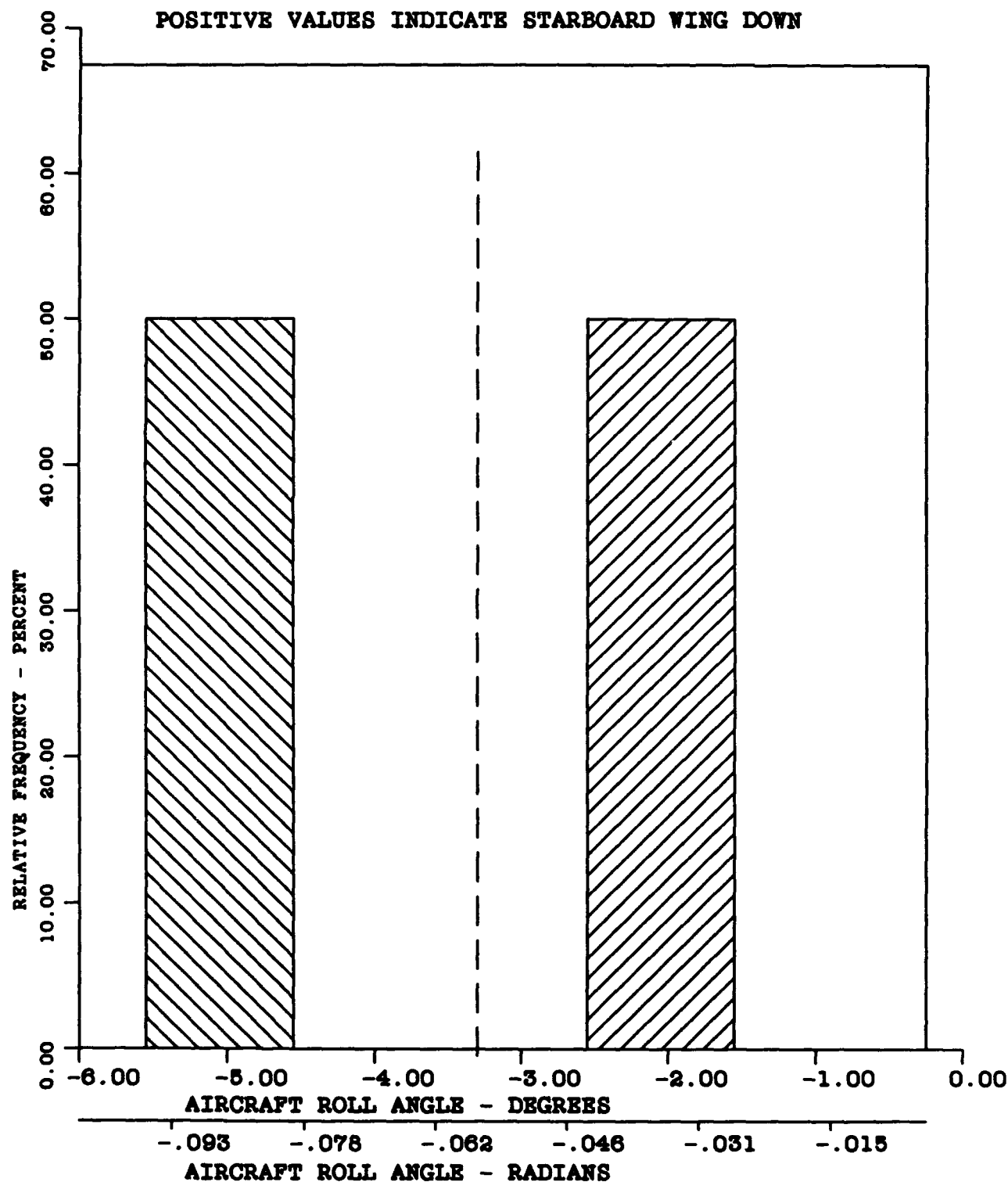


FIGURE P-29 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-2

 $\bar{X}$ -3.30 DEGREES (-.057 RADIANS)

A3-0.00

S-1.40 DEGREES (.024 RADIANS)

A4-1.00

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

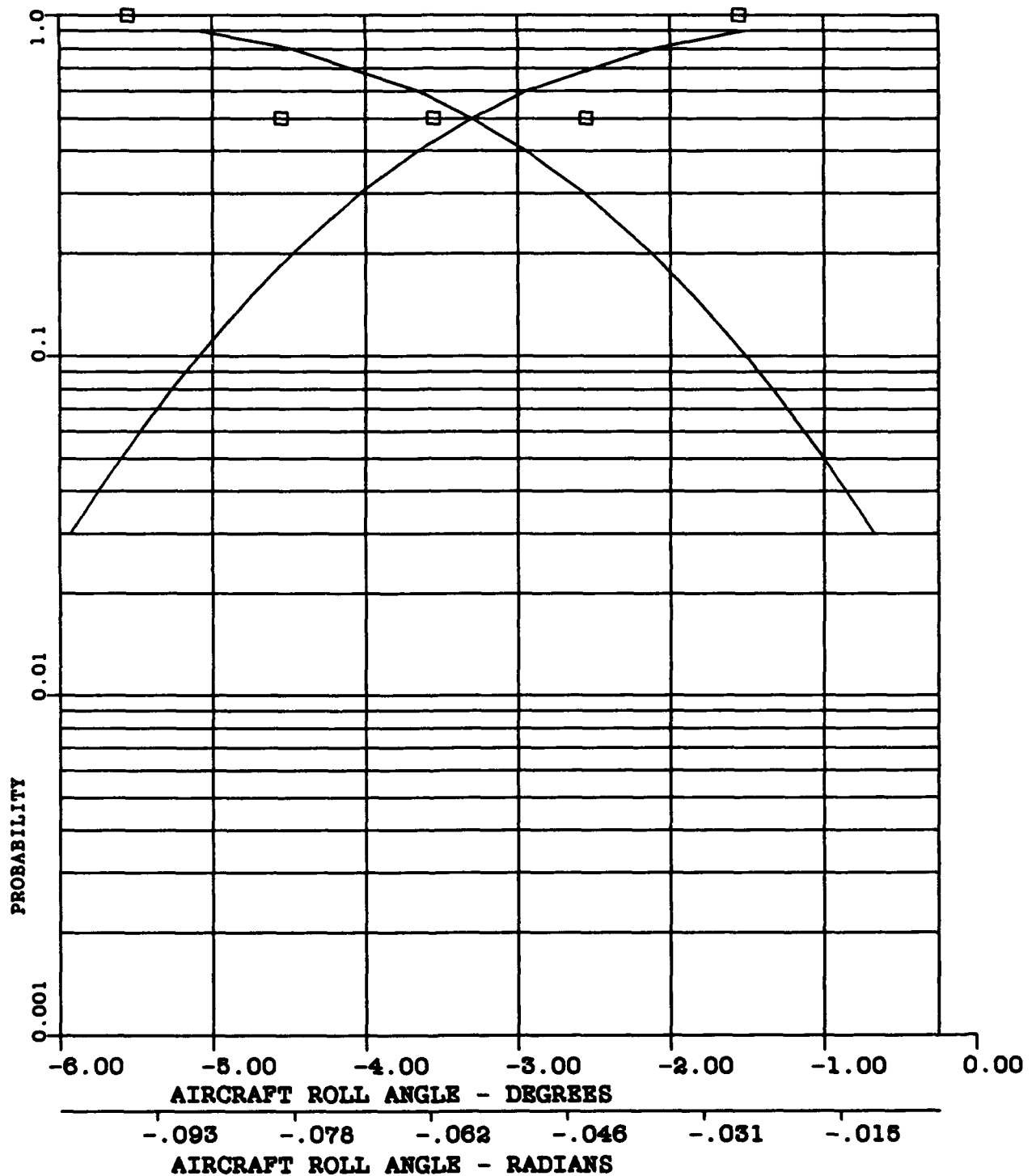


FIGURE P-30 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -242.78 FEET (74.00 METRES)

A3--.27

S-34.92 FEET (10.64 METRES)

A4-3.75

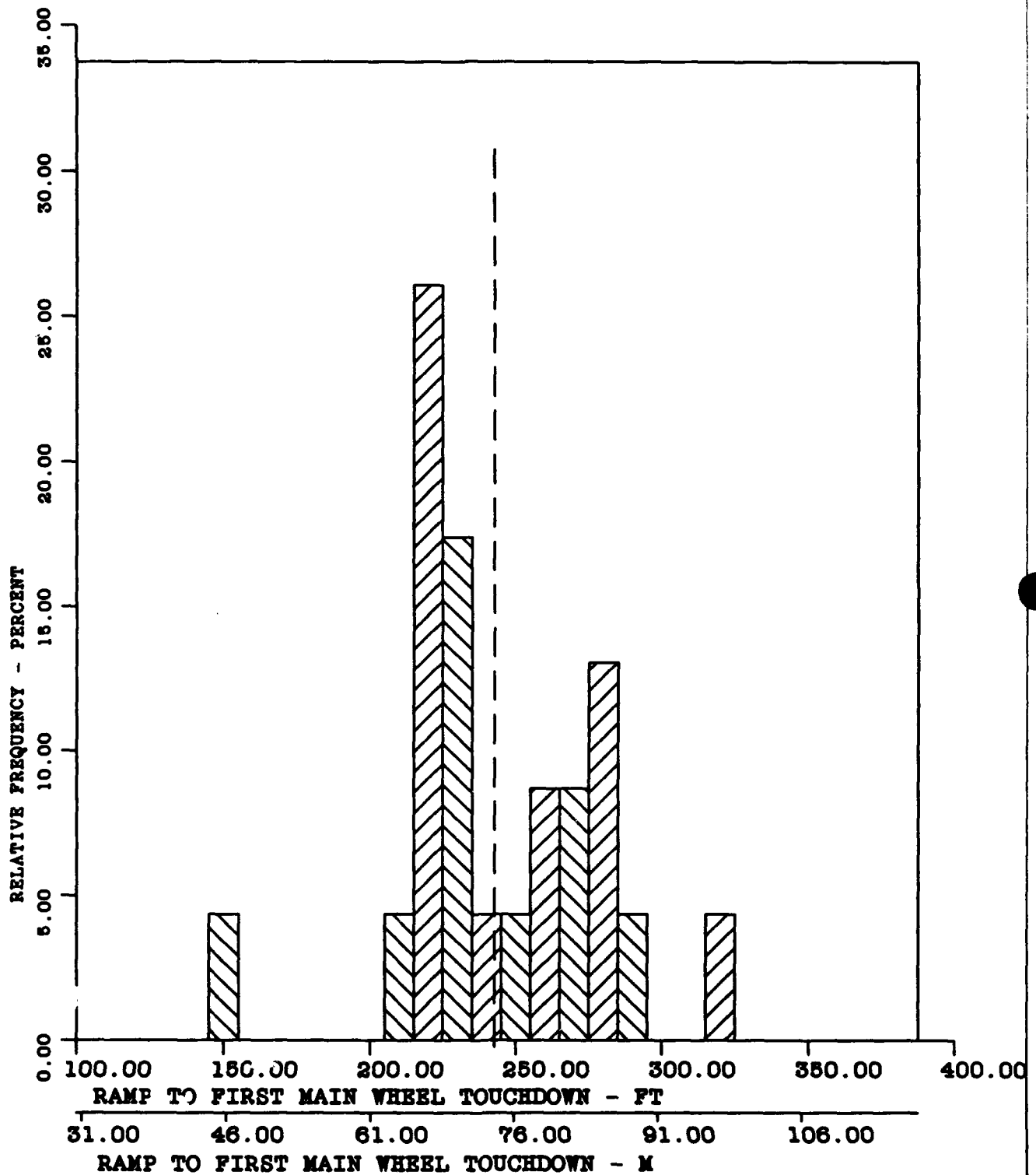


FIGURE P-31 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -242.78 FEET (74.00 METRES)

A3--.27

S-34.92 FEET (10.64 METRES)

A4-3.75

CURVE FITTED - NORMAL

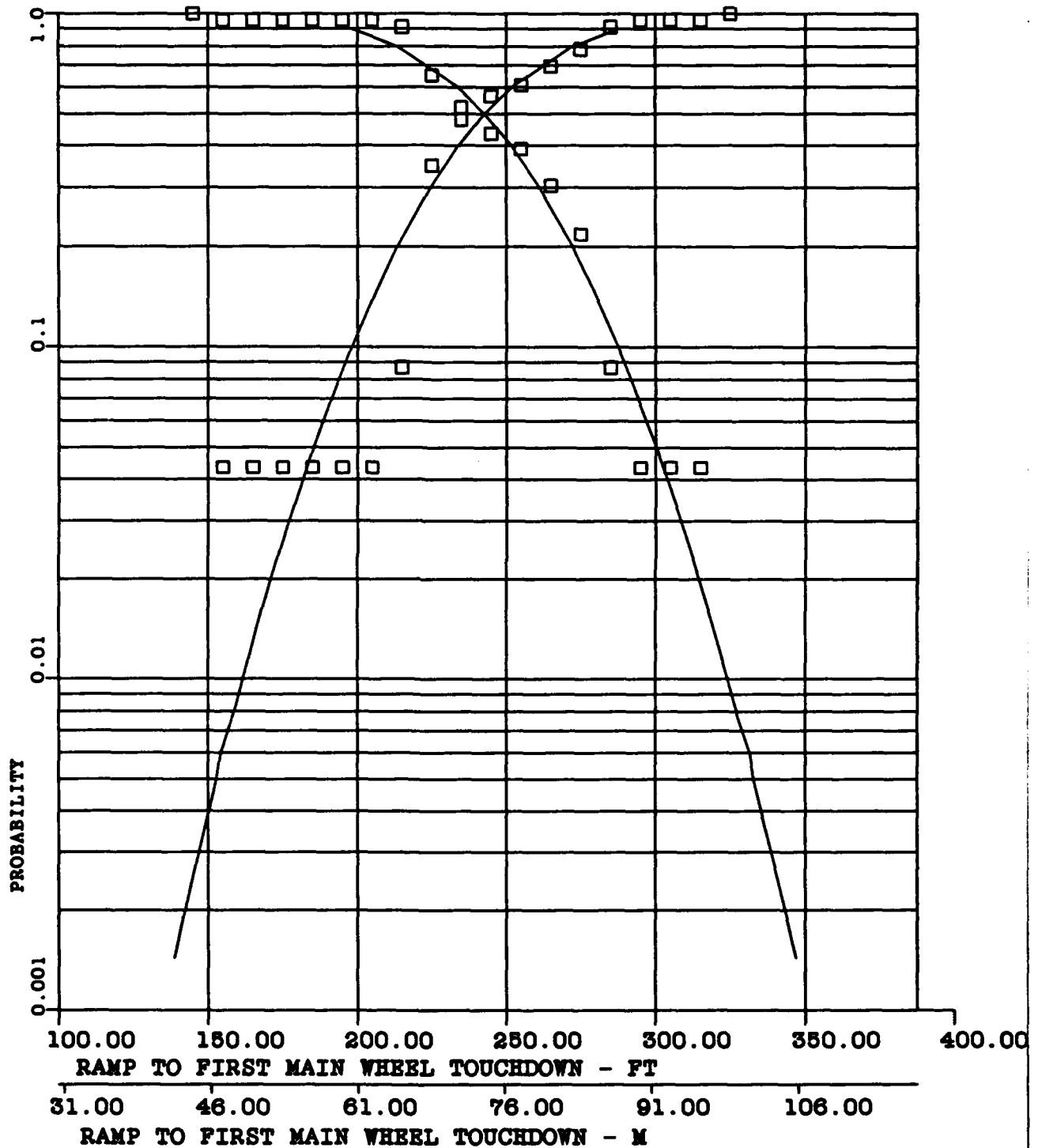


FIGURE P-32 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT



MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -8.86 FEET (-2.70 METRES)

A3--.24

S-4.07 FEET (1.24 METRES)

A4-1.98

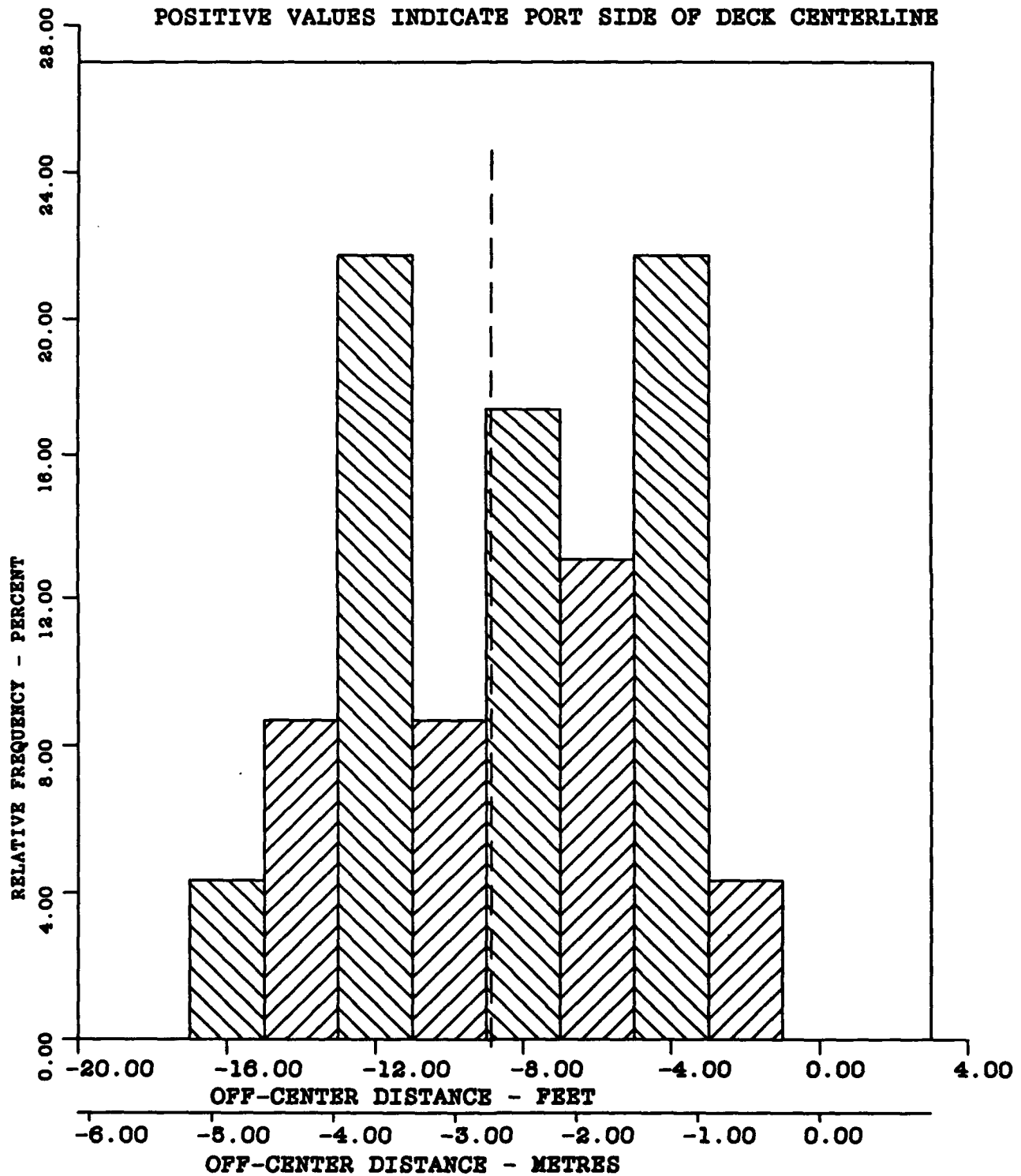


FIGURE P-33 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -8.86 FEET (-2.70 METRES)

A3--.24

S=4.07 FEET (1.24 METRES)

A4=1.98

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

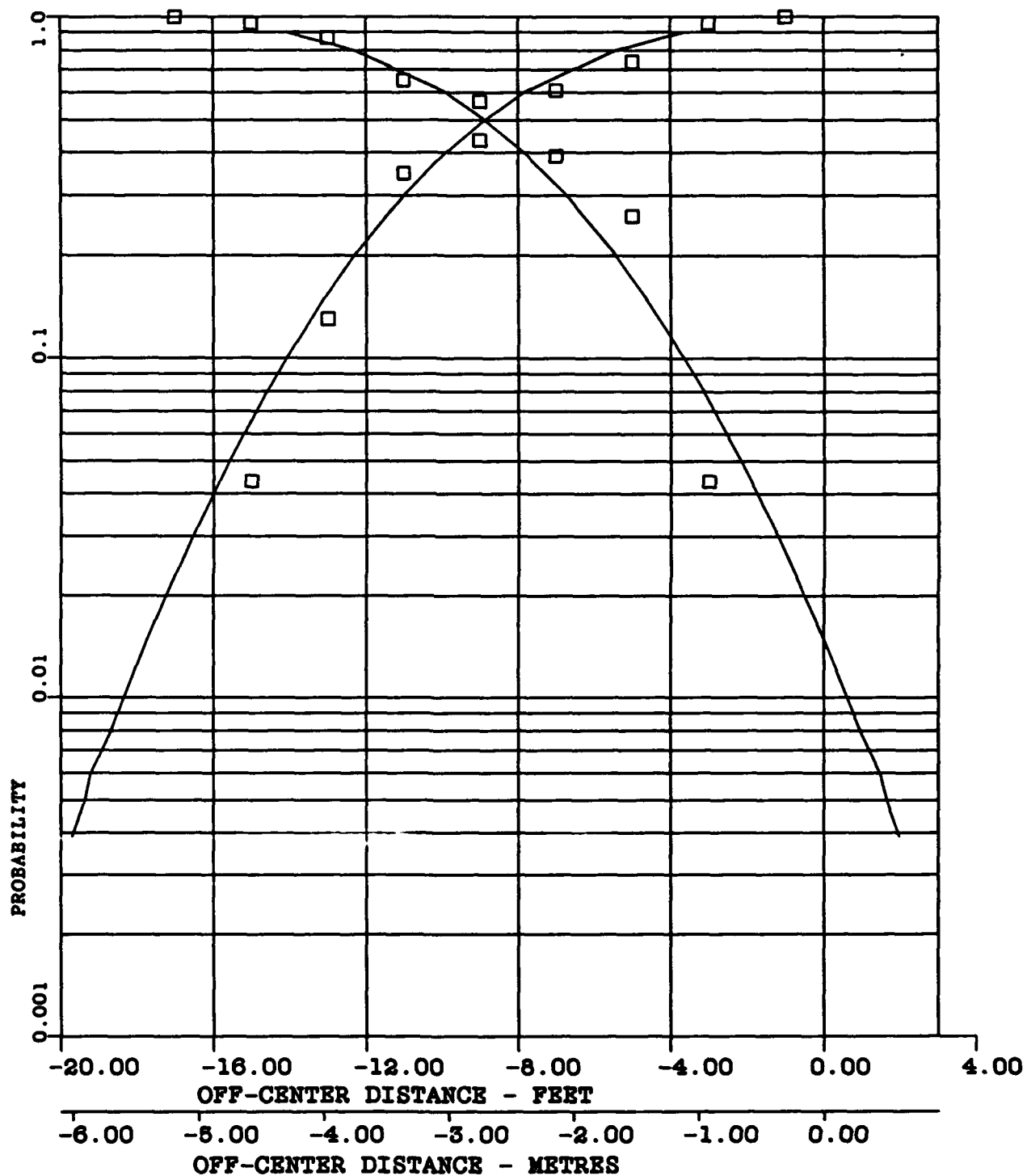


FIGURE P-34 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-16

 $\bar{X}$ -2.56

S-.86

A3-.38

A4-2.21

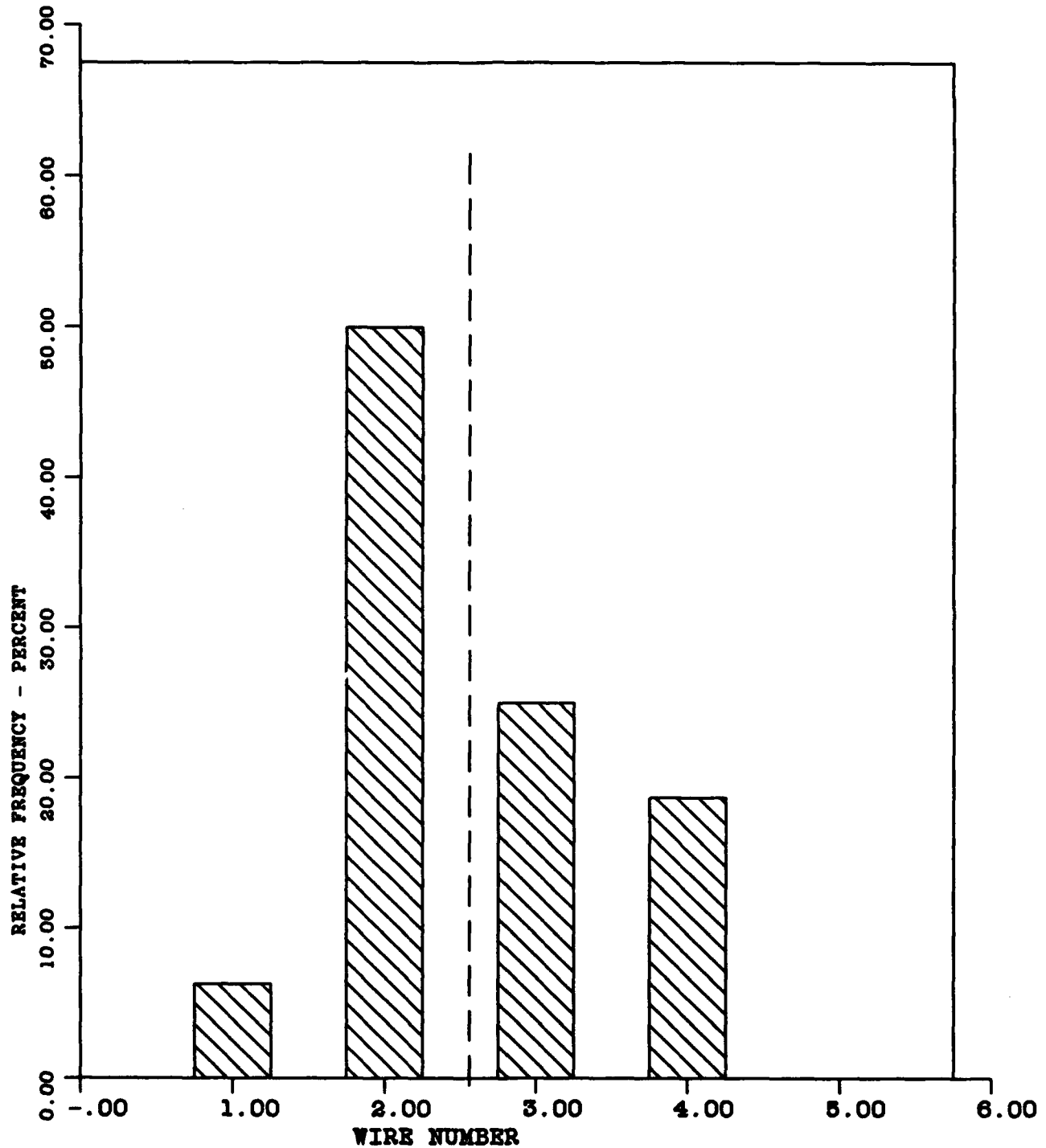


FIGURE P-35 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -3.15 DEGREES (.054 RADIANS)

A3--.20

S-.75 DEGREES (.013 RADIANS)

A4-2.32

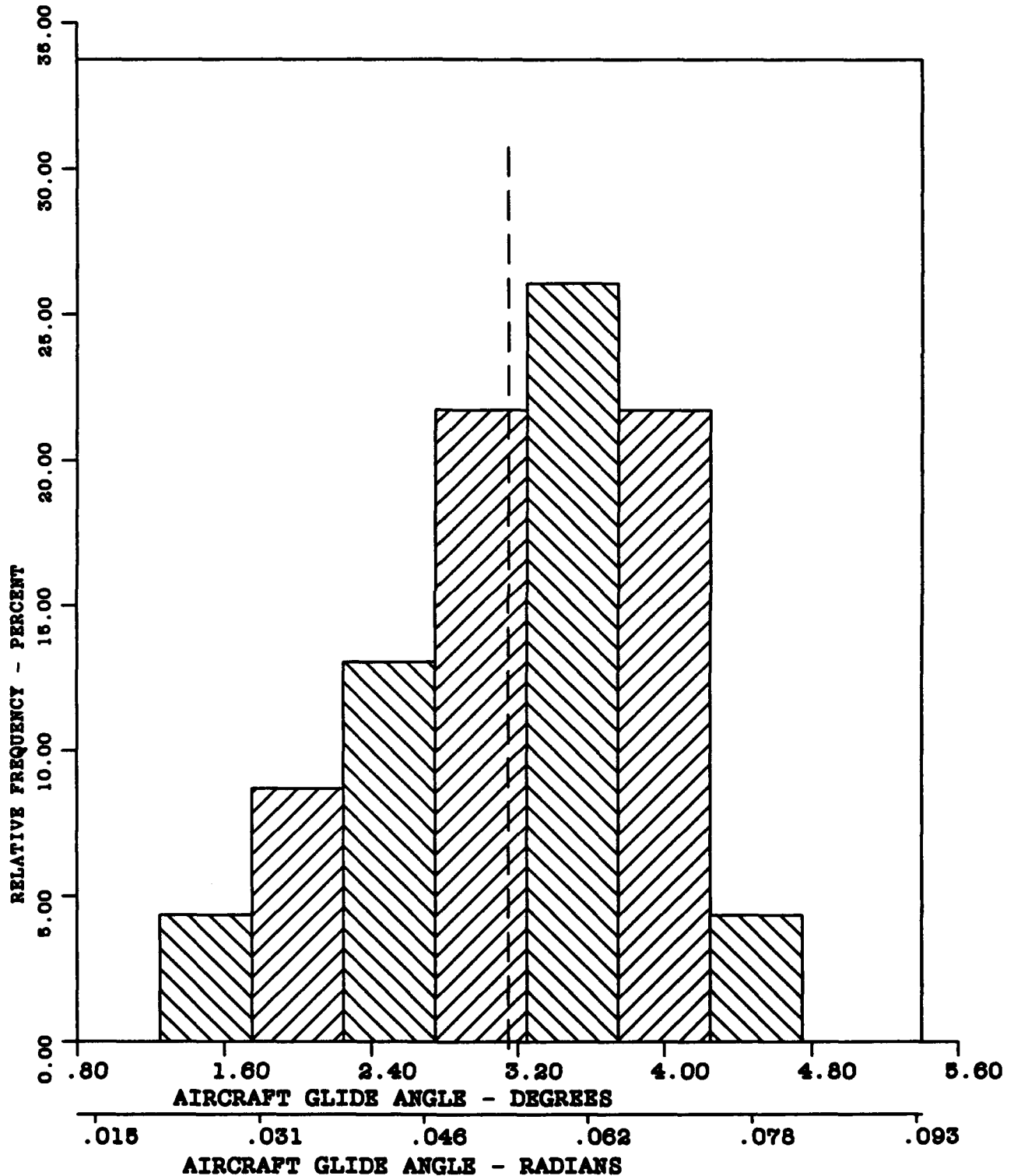


FIGURE P-36 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -3.70 DEGREES (.064 RADIANS)

A3-.17

S-.72 DEGREES (.012 RADIANS)

A4-2.56

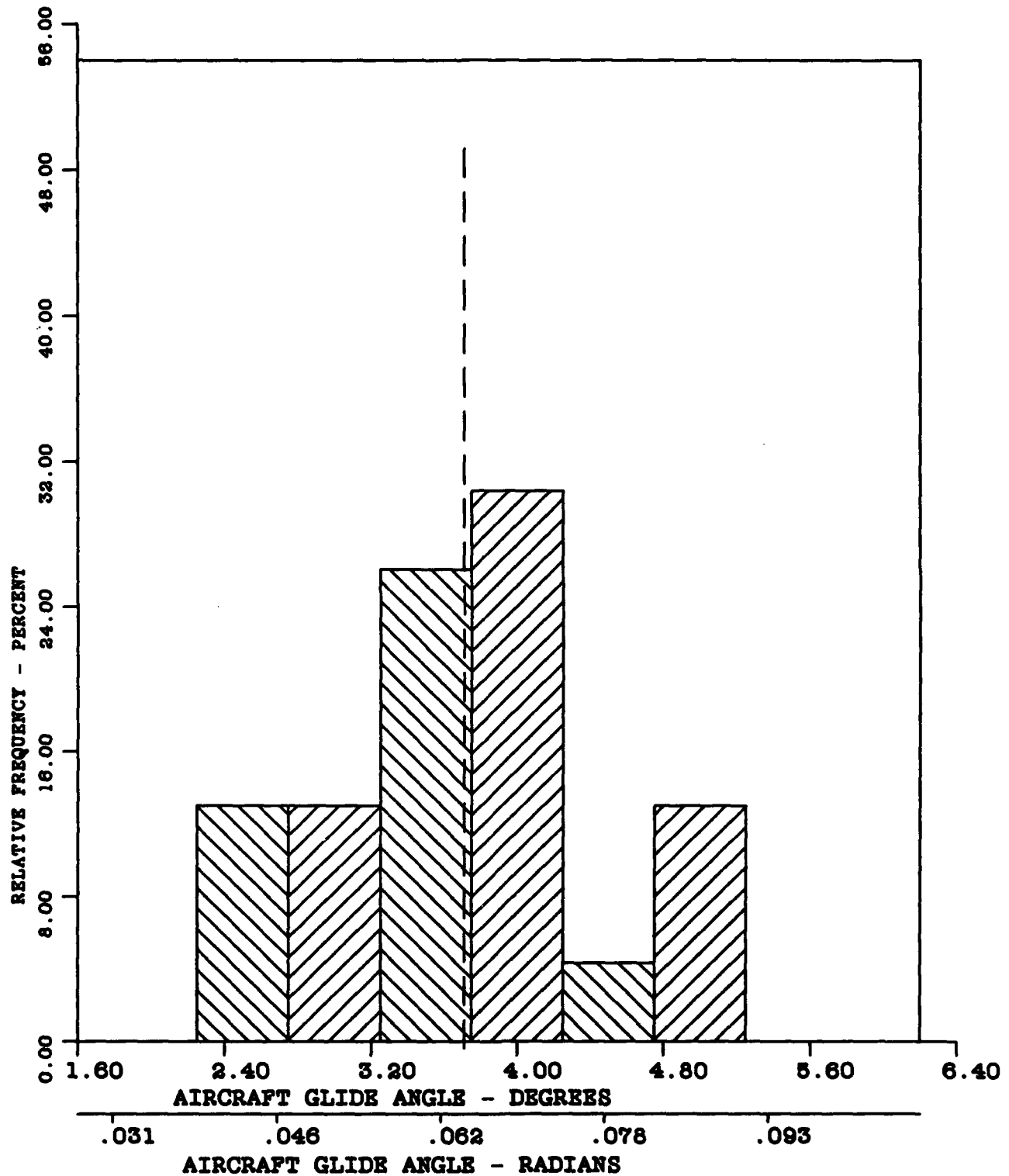


FIGURE P-37 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -13.81 FEET (4.21 METRES)

A3--.11

S-2.80 FEET (.85 METRES)

A4-2.11

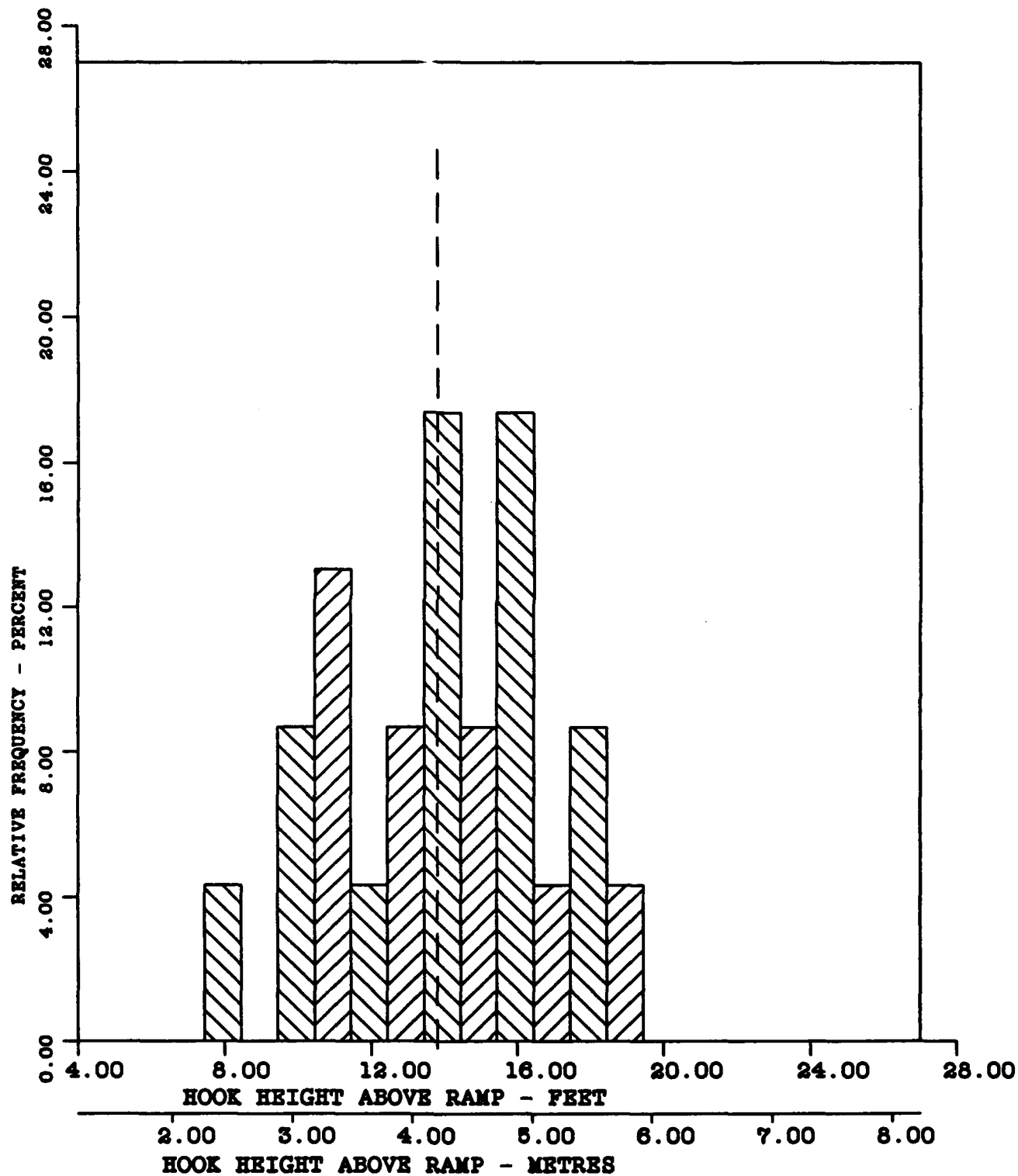


FIGURE P-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -13.81 FEET (4.21 METRES)

A3--.11

S-2.80 FEET (.85 METRES)

A4-2.11

CURVE FITTED - NORMAL

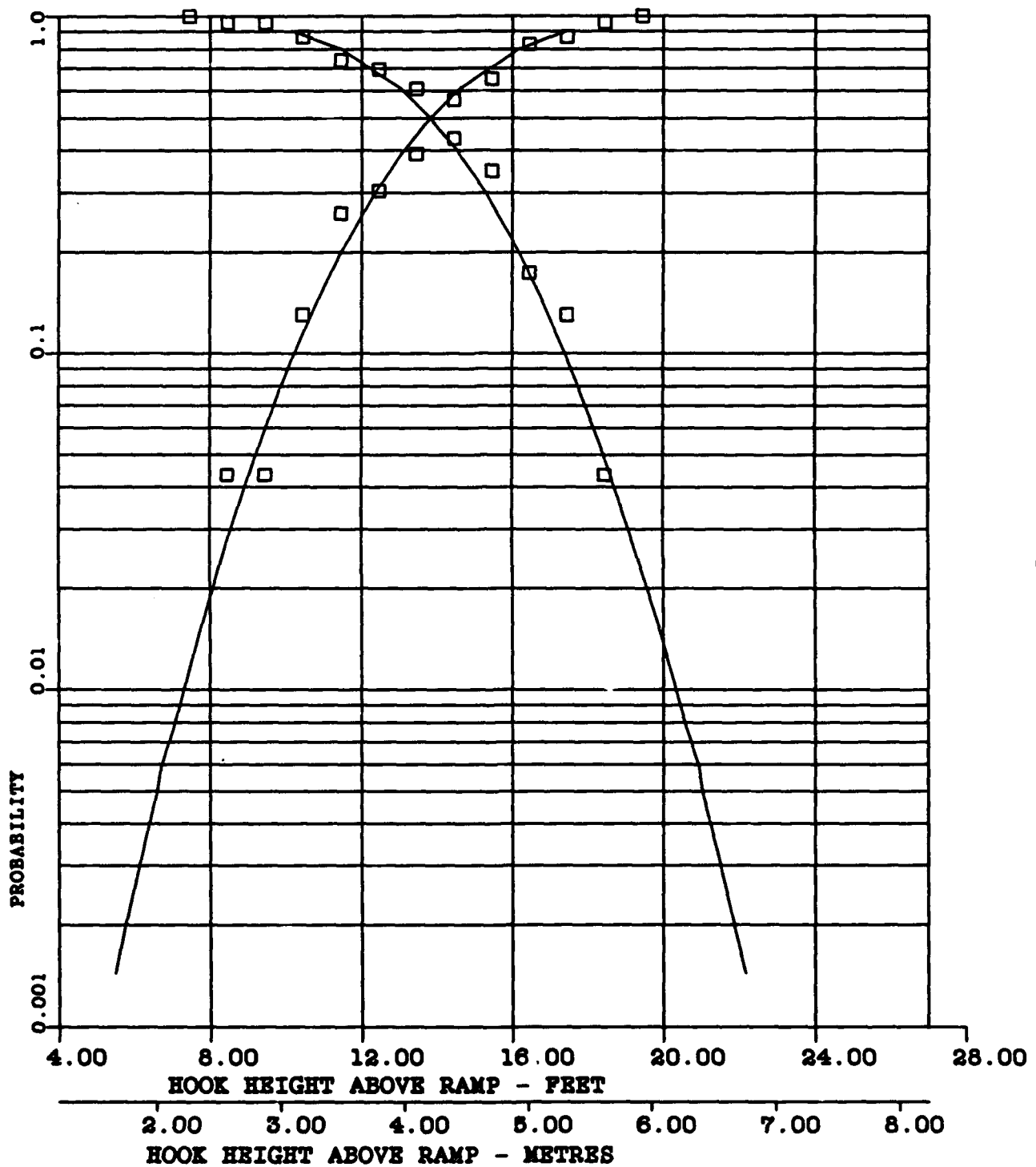


FIGURE P-39 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -100.48 KNOTS (51.69 METRES/SEC)

A3-.50

S-4.51 KNOTS (2.32 METRES/SEC)

A4-1.93

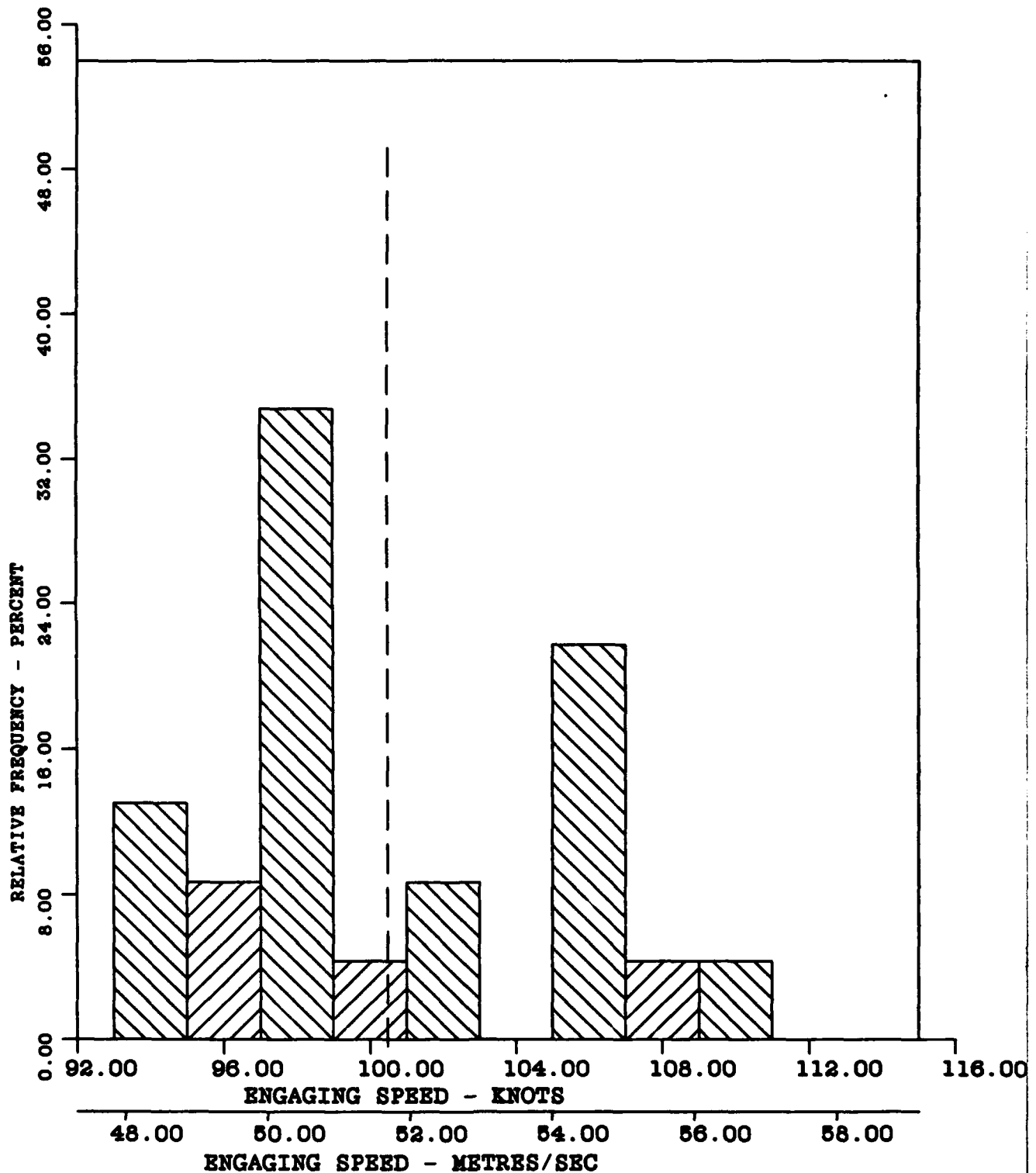


FIGURE P-40 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN



MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -100.48 KNOTS (51.69 METRES/SEC)

S-4.51 KNOTS (2.32 METRES/SEC)

CURVE FITTED - NORMAL

A3-.50

A4-1.93

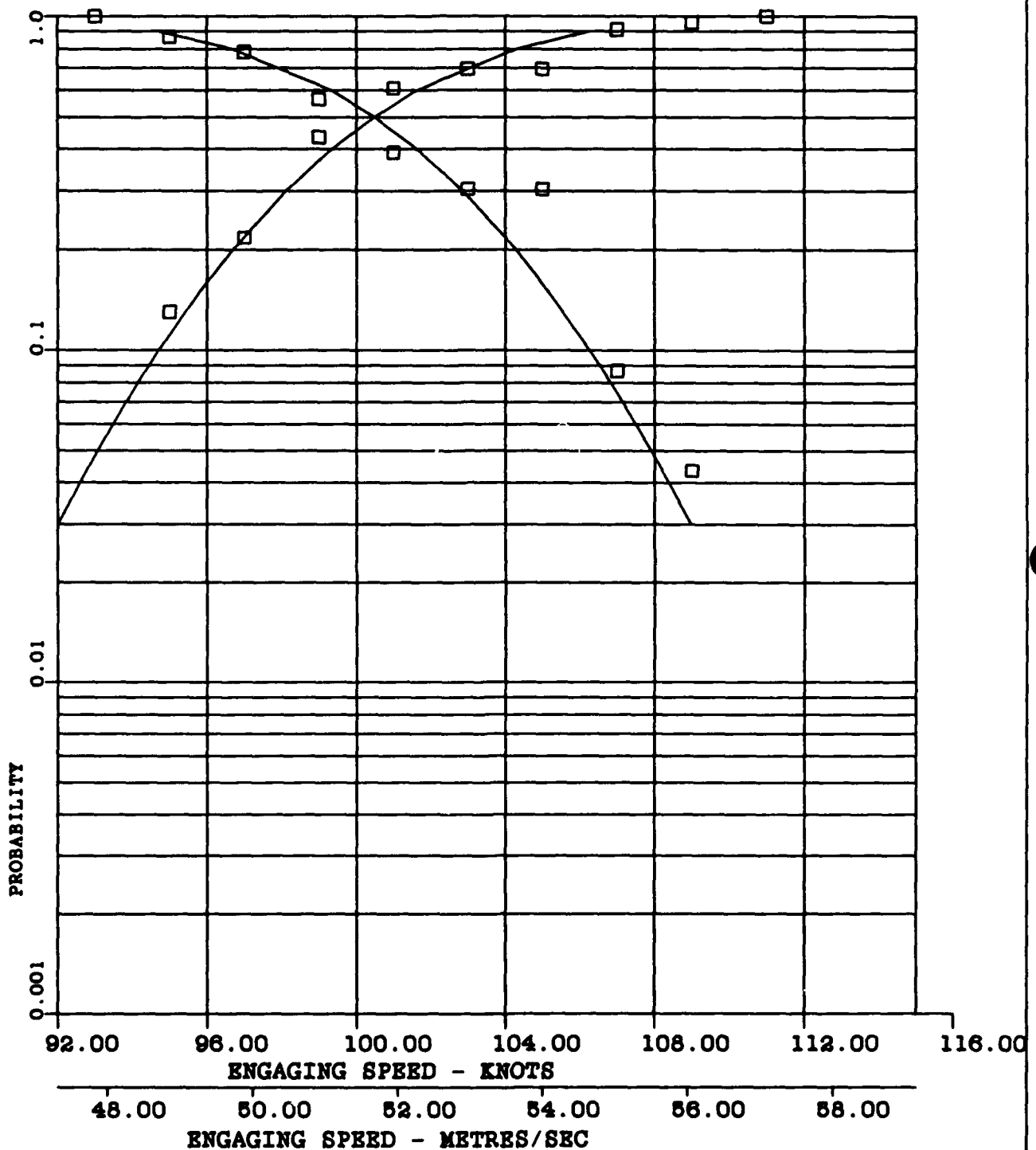


FIGURE P-41 PROBABILITY DISTRIBUTION OF ENGAGING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-22

 $\bar{X}$ -113.15 KNOTS (58.20 METRES/SEC)

A3--.80

S-2.14 KNOTS (1.10 METRES/SEC)

A4-2.92

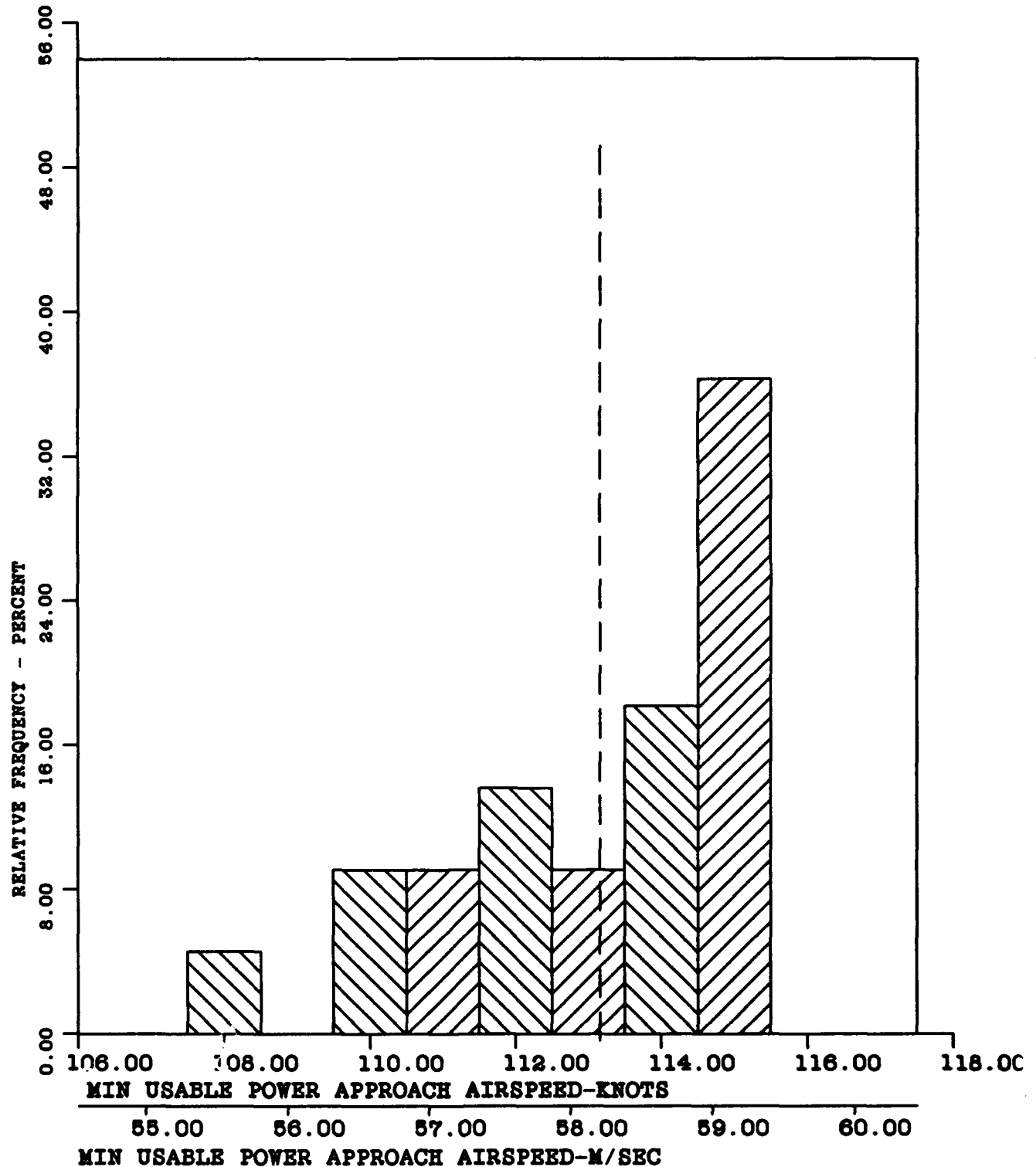


FIGURE P-42 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-22

 $\bar{X}$ -1.10

A3-.74

S-.04

A4-2.66

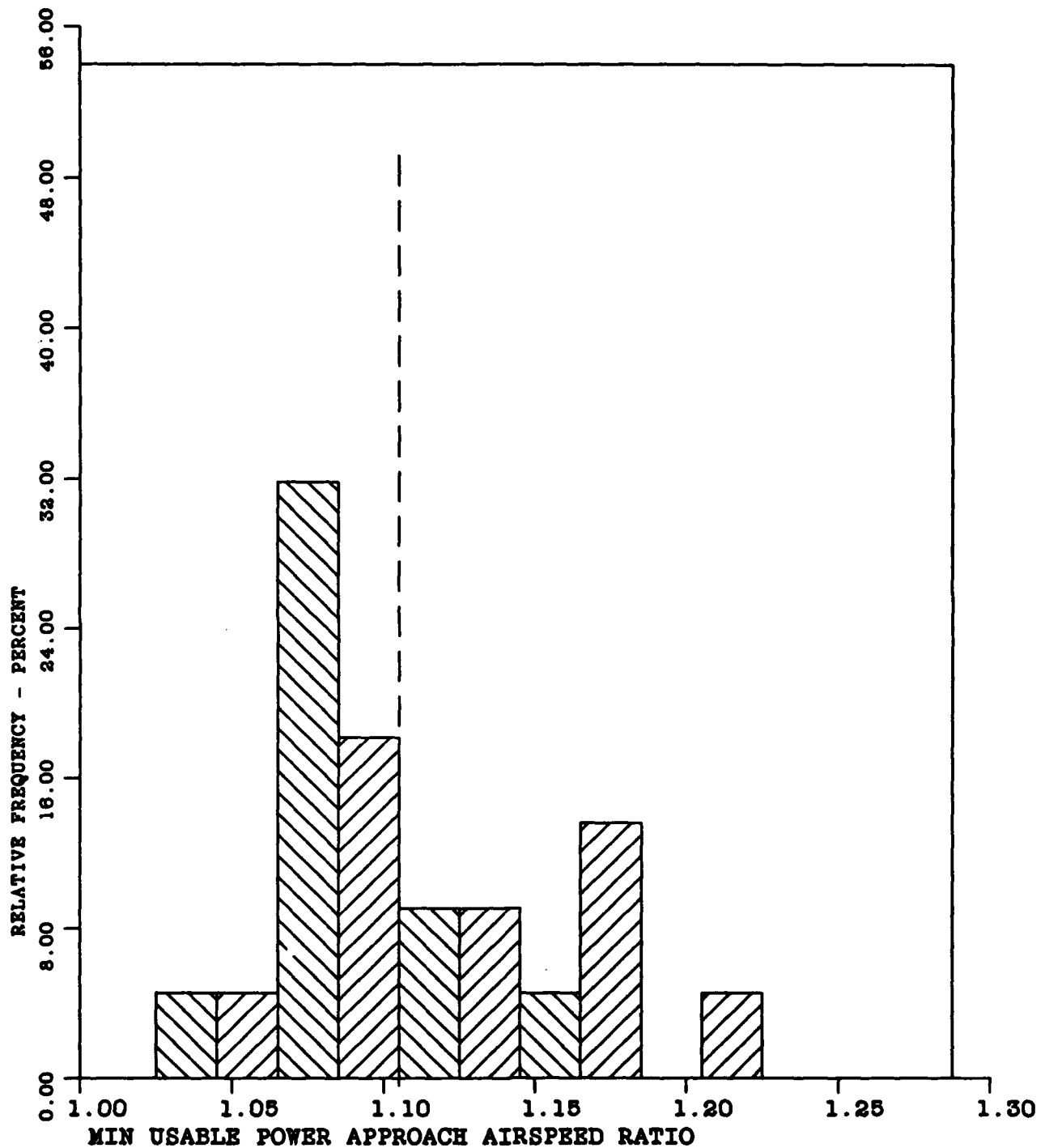


FIGURE P-43 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-19

 $\bar{X}$ -.58 DEGREES (-.010 RADIANS)

A3--.73

S-.40 DEGREES (.007 RADIANS)

A4-2.68

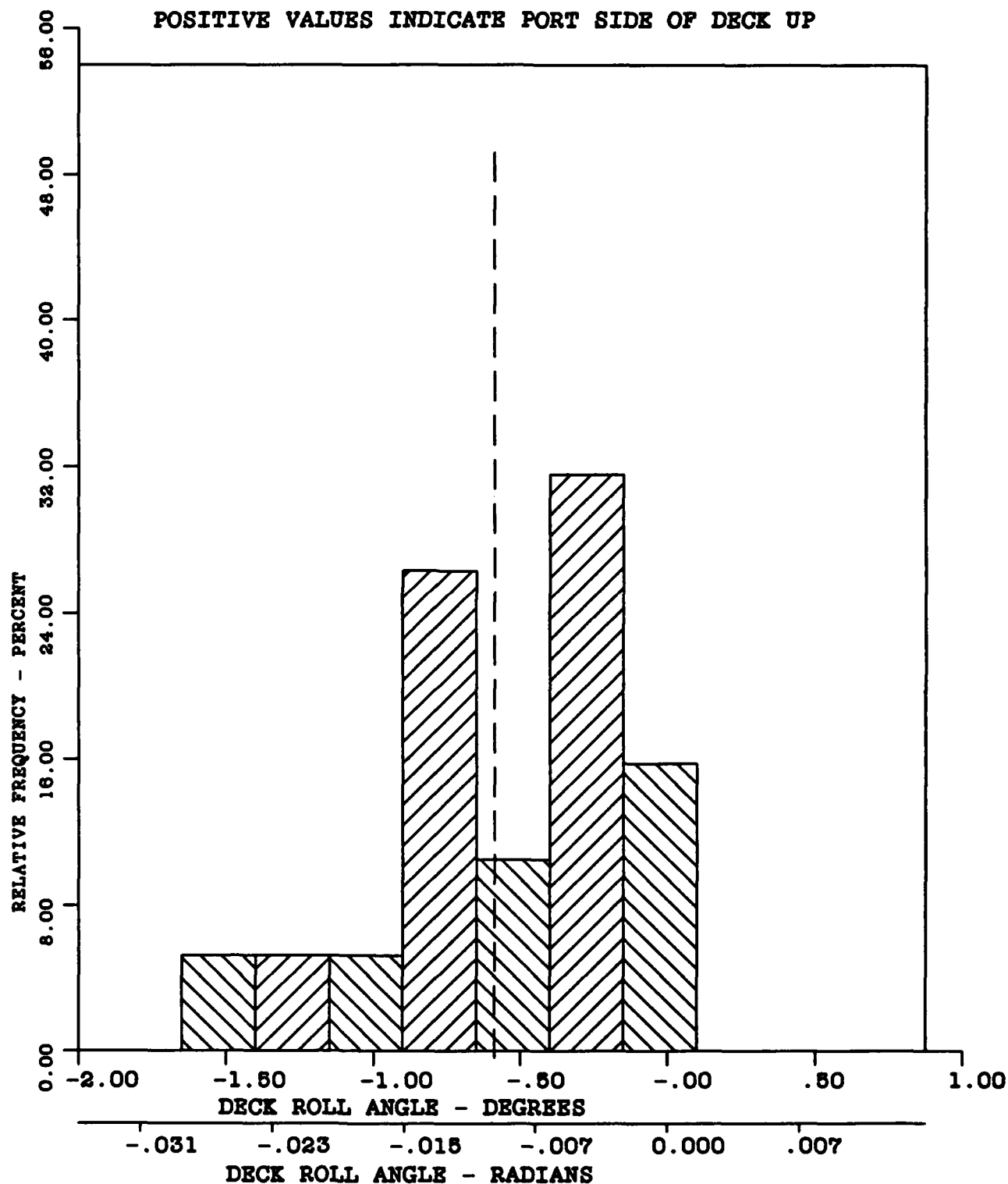


FIGURE P-44 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-19

 $\bar{X}$ -.58 DEGREES (-.010 RADIANS)

A3--.73

S-.40 DEGREES (.007 RADIANS)

A4-2.68

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

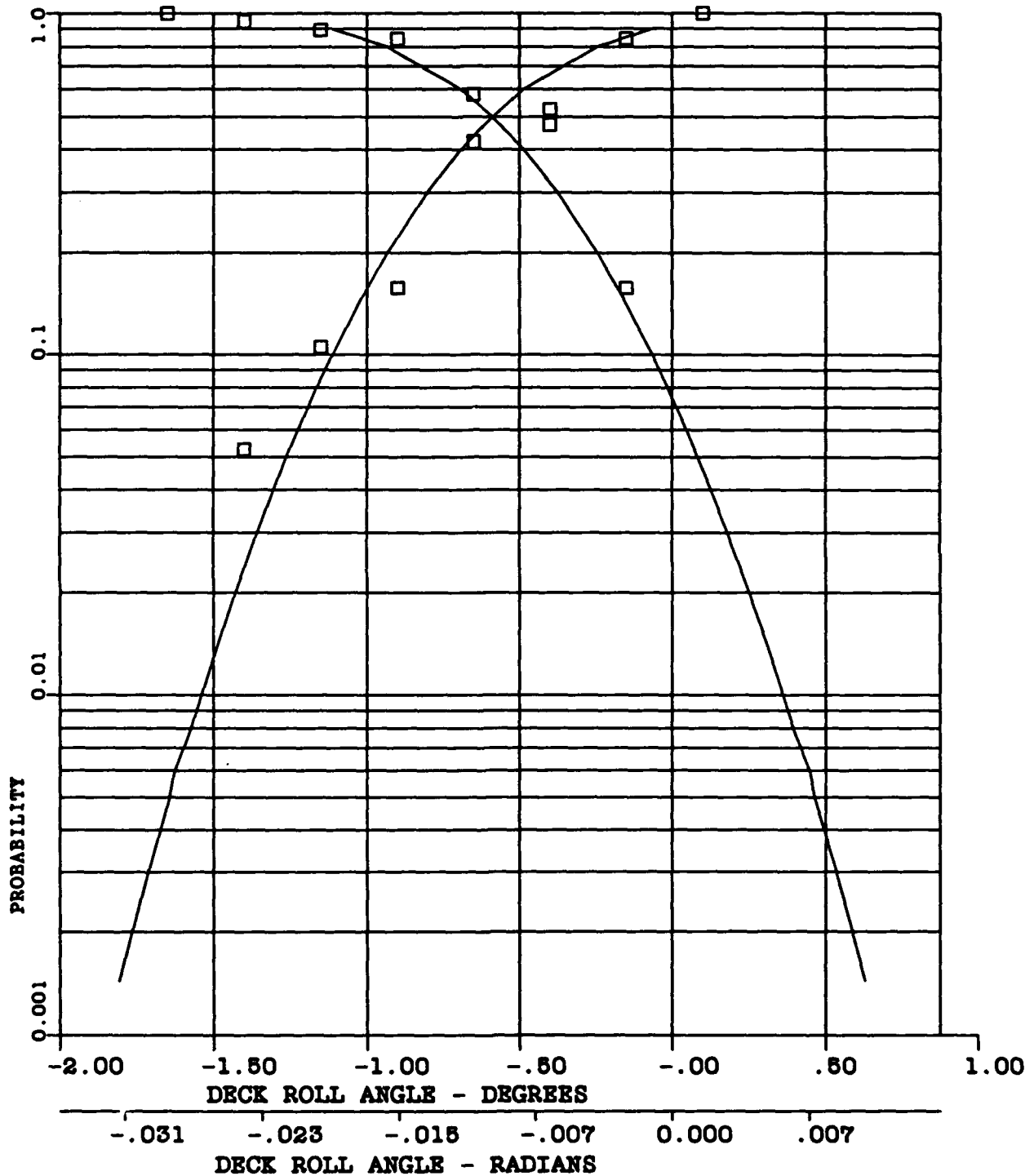


FIGURE P-45 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-19

 $\bar{X}$ -.27 DEGREES (-.004 RADIANS)

A3--.60

S-.13 DEGREES (.002 RADIANS)

A4-2.04

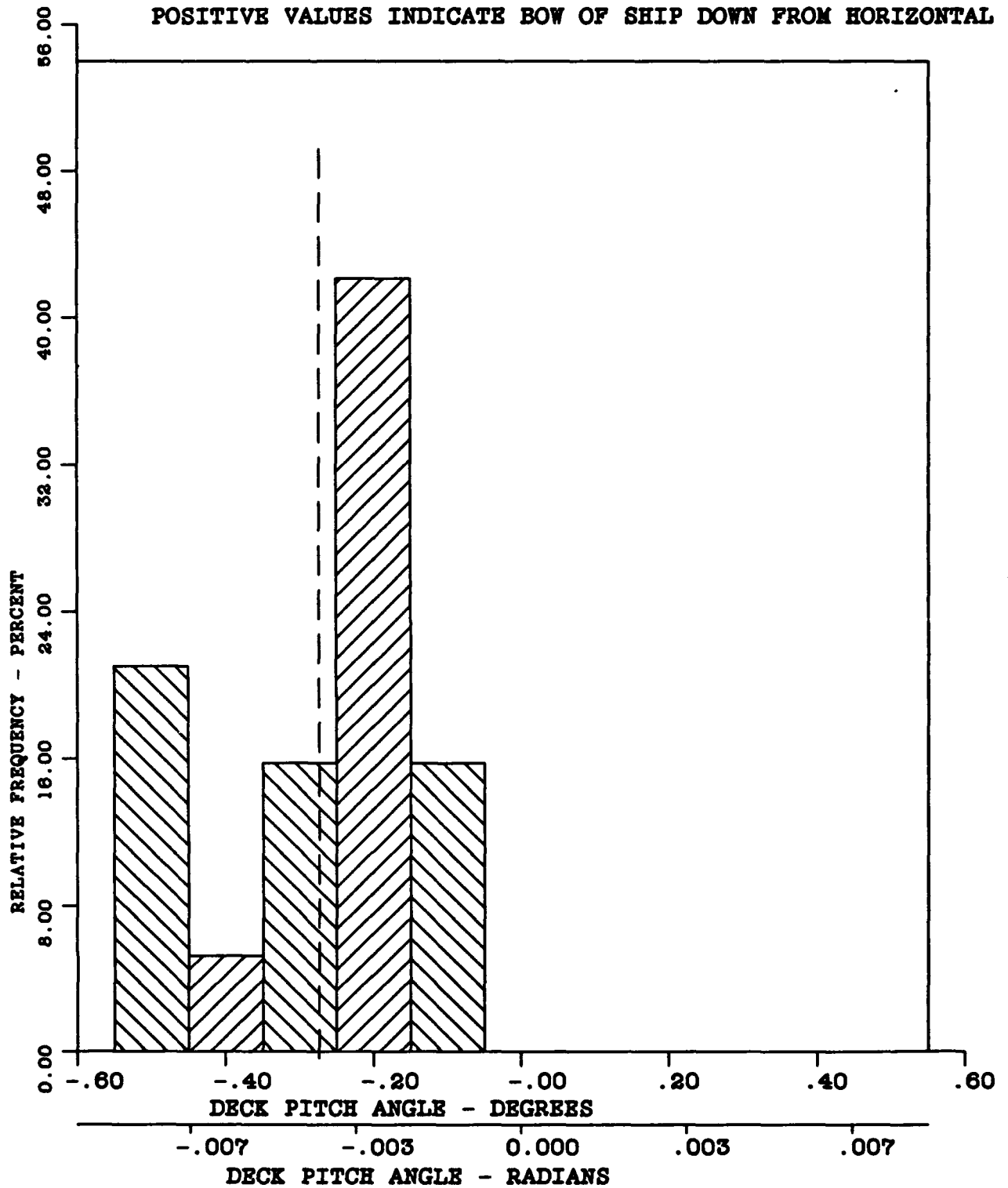


FIGURE P-46 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-19

 $\bar{X}$  = -.27 DEGREES (-.004 RADIANS)

A3 = -.60

S = .13 DEGREES (.002 RADIANS)

A4 = 2.04

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

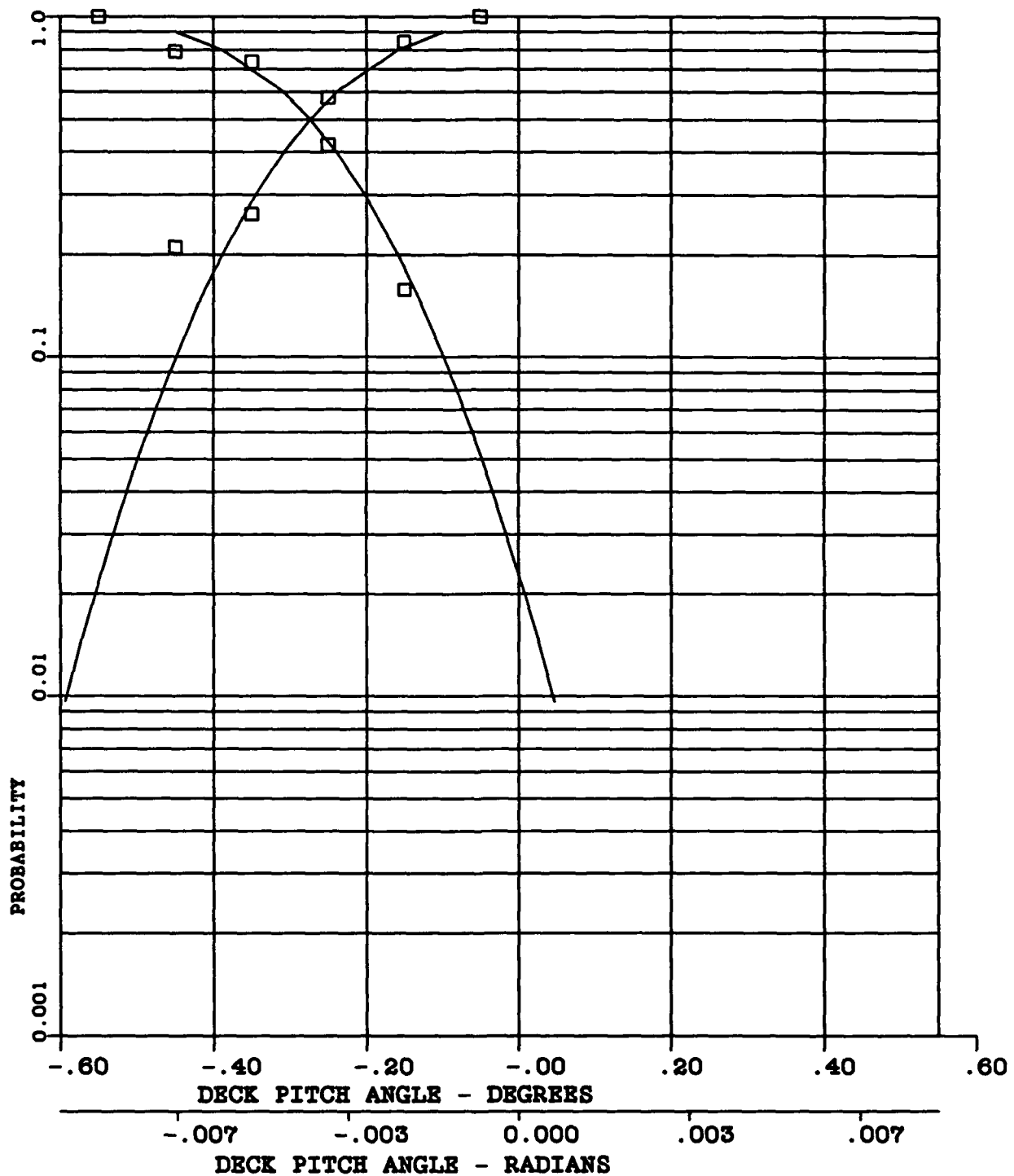


FIGURE P-47 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.80 DEGREES (.061 RADIANS)

N-22

 $\bar{X}$ -48109.19 POUNDS (21822.33 KILOGRAMS)

A3--.76

S-1808.04 POUNDS (820.12 KILOGRAMS)

A4-2.83

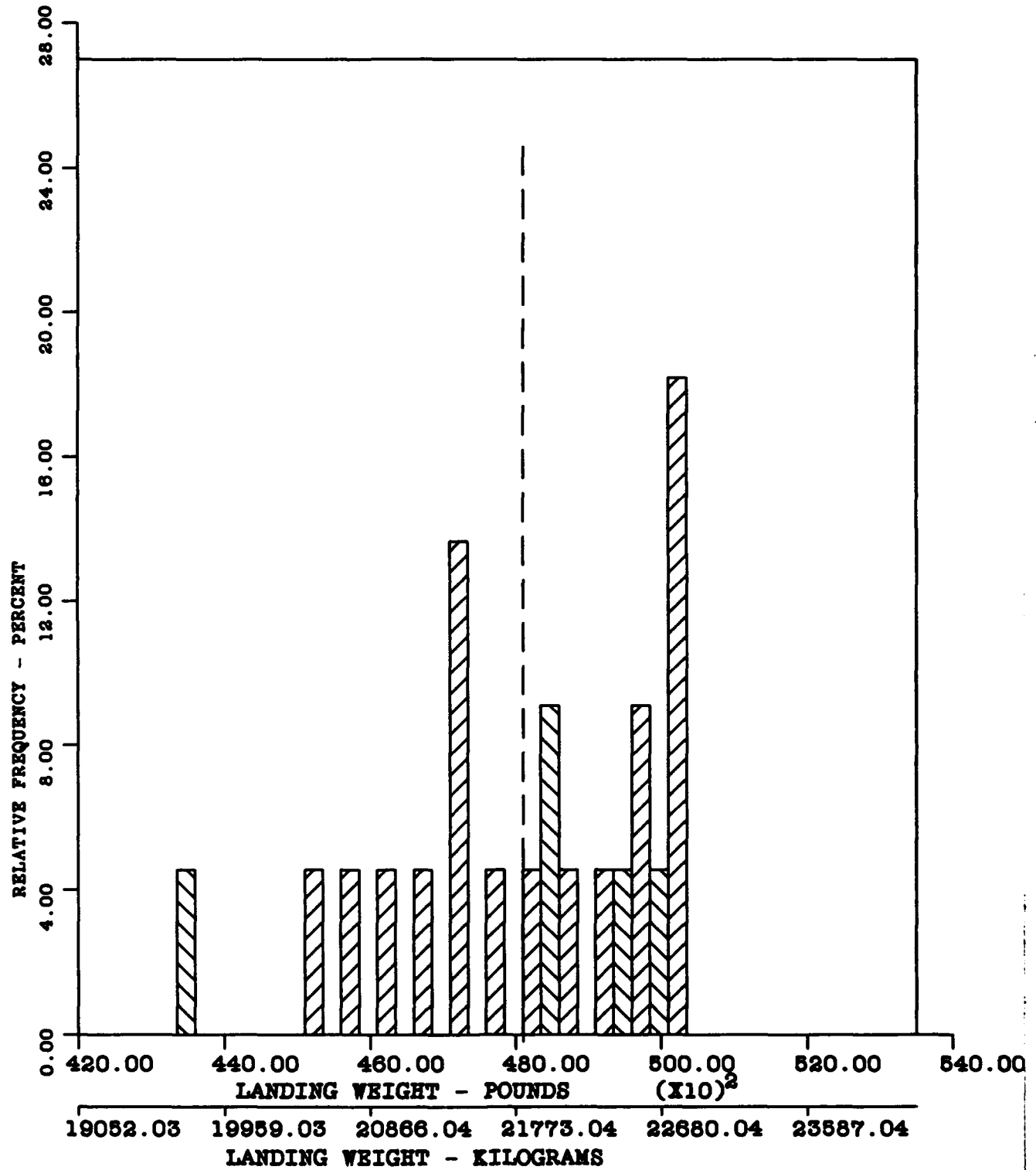


FIGURE P-48 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT



MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$  = -.18 DEG/SEC (-.003 RAD/SEC)

A3 = -.08

S = 2.79 DEG/SEC (.048 RAD/SEC)

A4 = 2.50

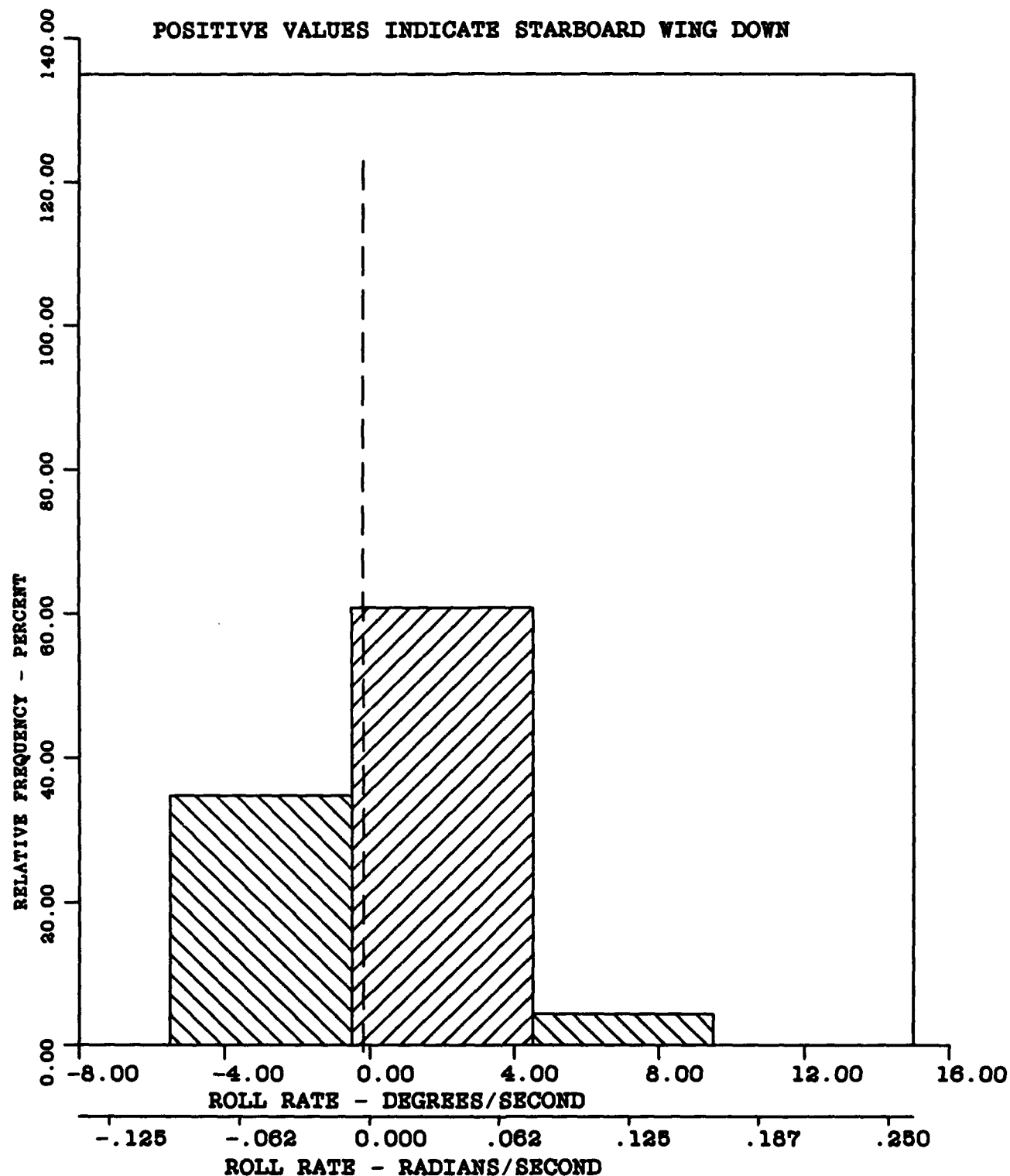


FIGURE P-49 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X} = -.18$  DEG/SEC ( $-.003$  RAD/SEC)

A3--.08

S=2.79 DEG/SEC (.048 RAD/SEC)

A4-2.50

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

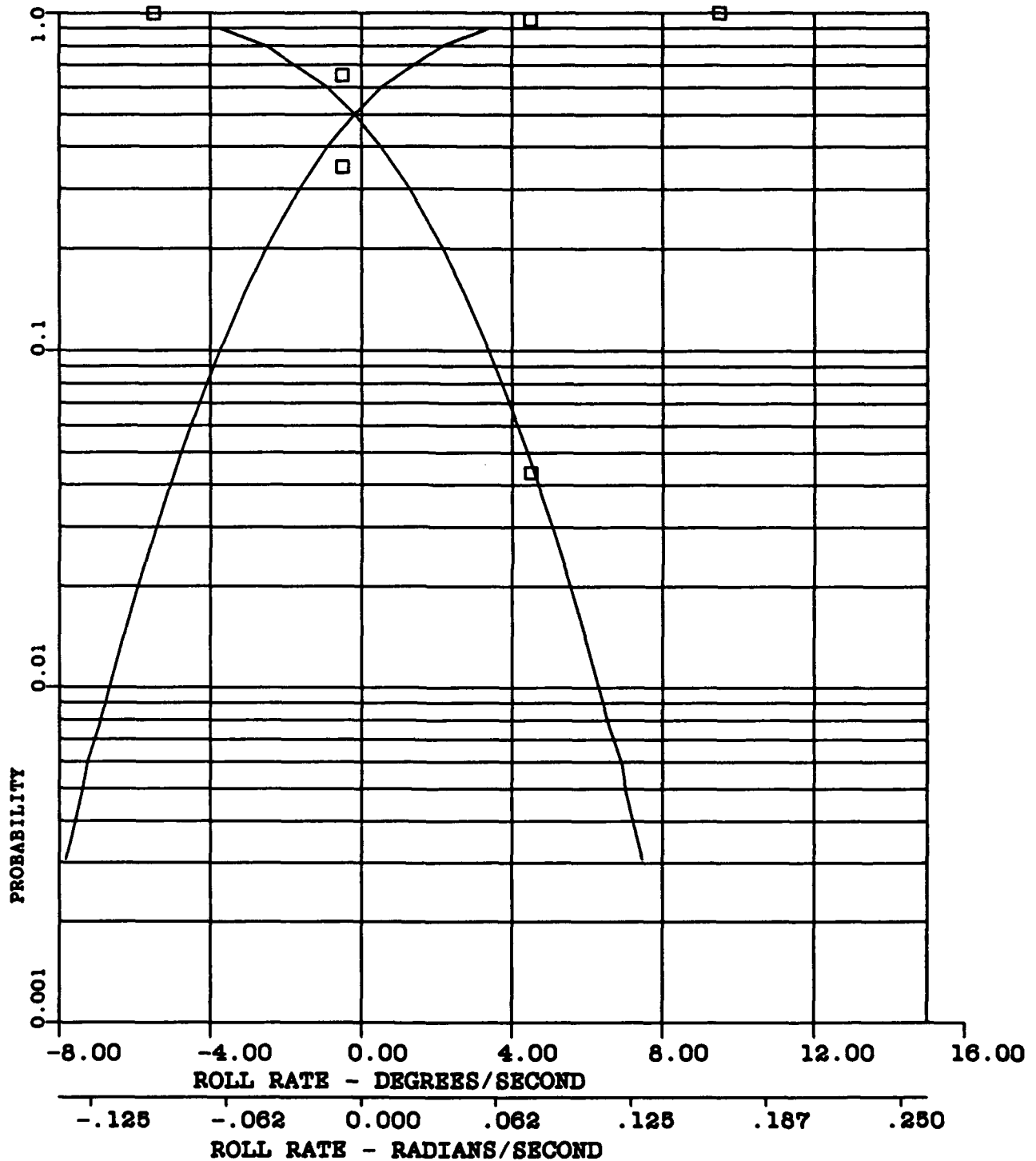


FIGURE P-50 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -1.71 DEG/SEC (.029 RAD/SEC)

A3--.26

S-2.61 DEG/SEC (.045 RAD/SEC)

A4-2.66

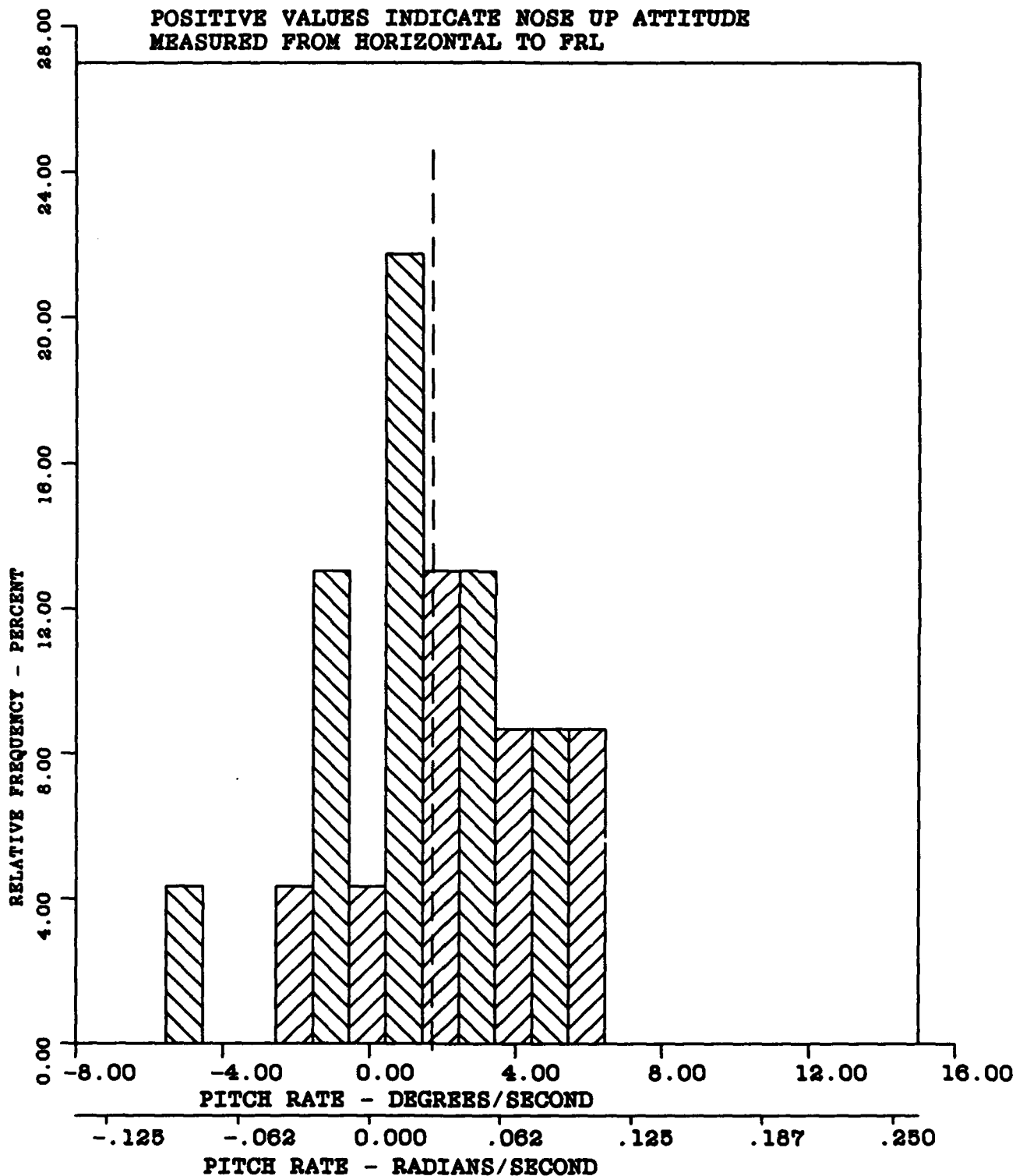


FIGURE P-51 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -1.71 DEG/SEC (.029 RAD/SEC)

A3--.26

S-2.61 DEG/SEC (.045 RAD/SEC)

A4-2.66

CURVE FITTED - NORMAL

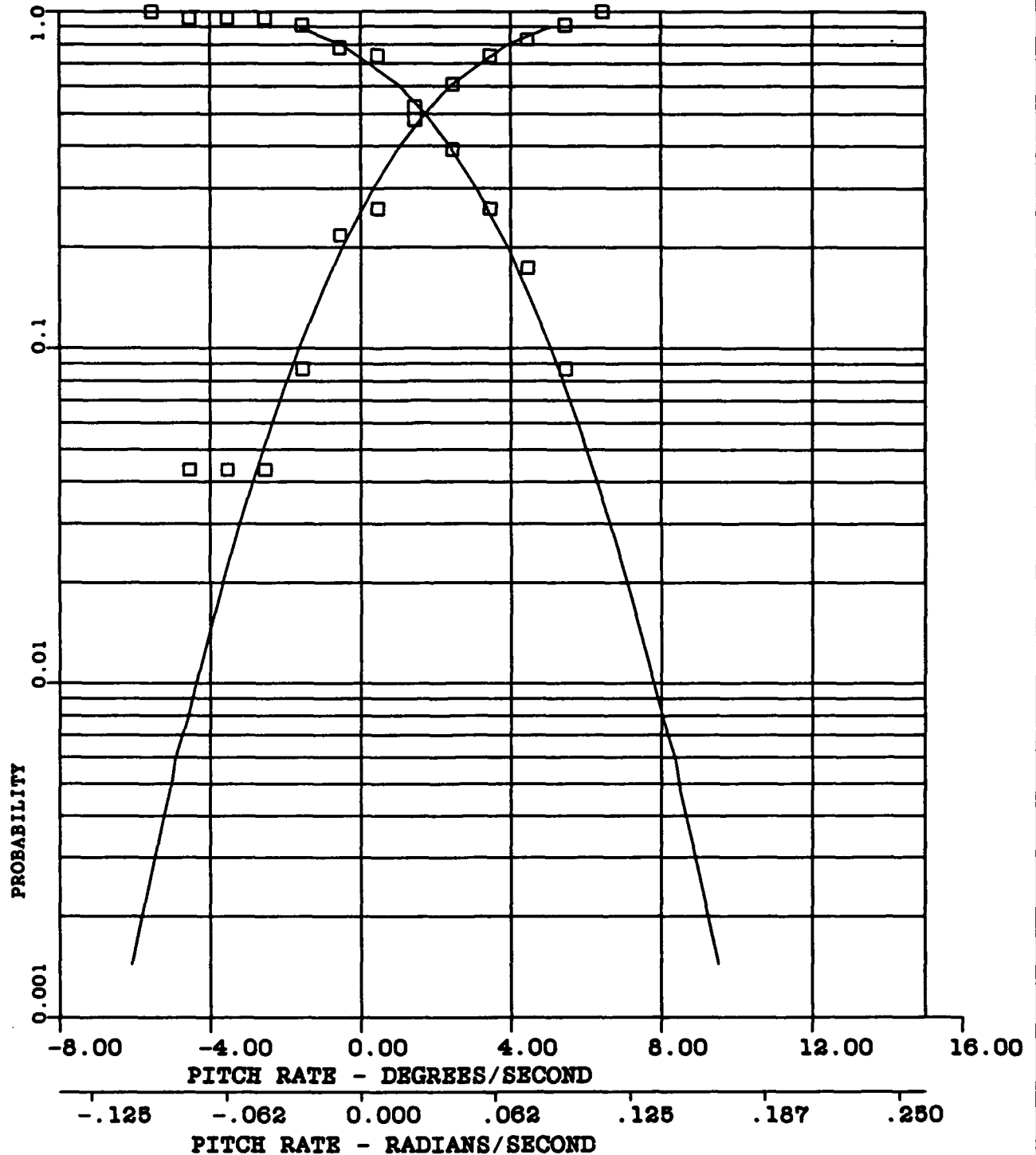
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

FIGURE P-52 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING=3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ =-3.36 DEGREES (-.058 RADIANS)

A3-.48

S=1.24 DEGREES (.021 RADIANS)

A4=4.22

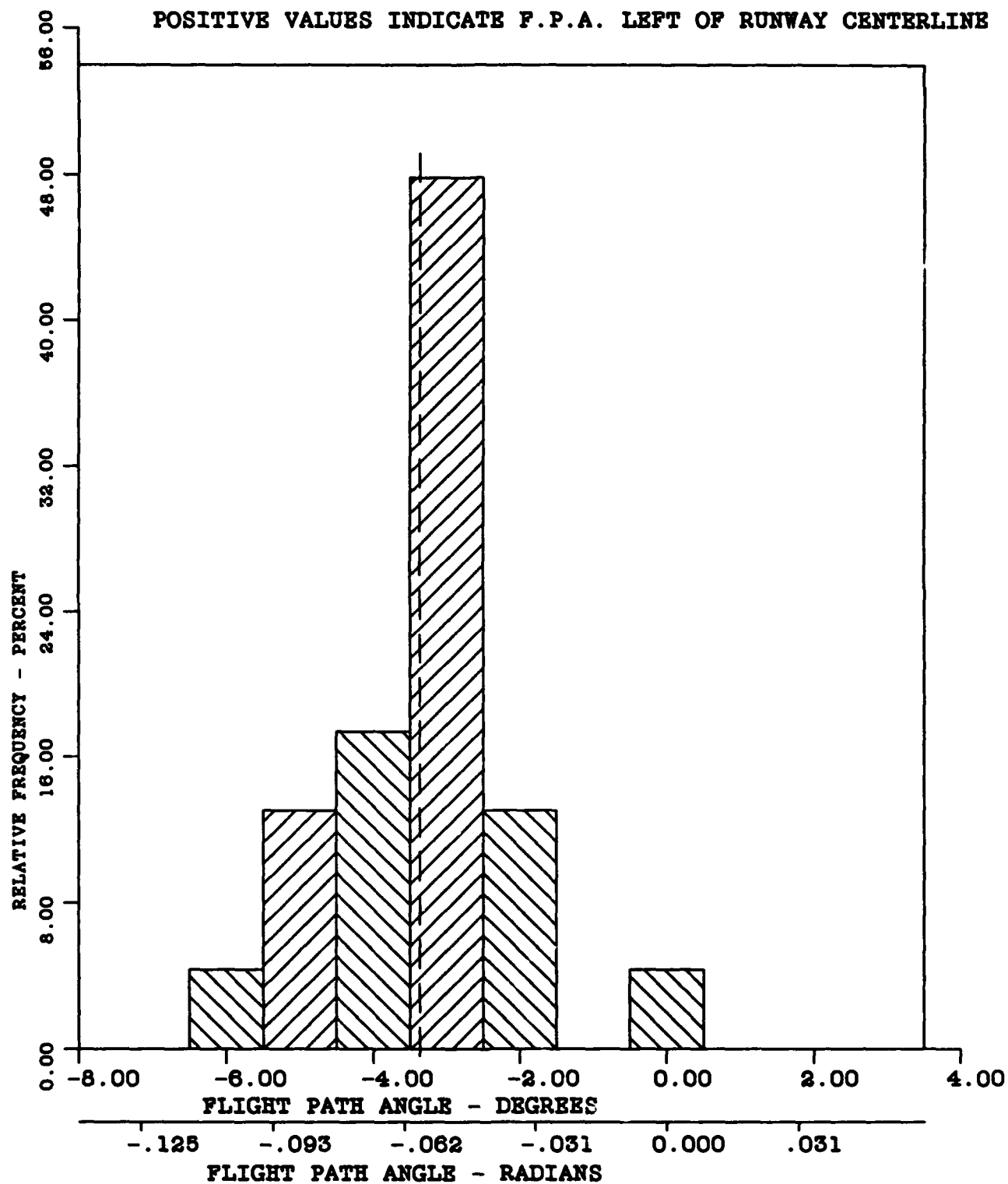


FIGURE P-53 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -3.36 DEGREES (-.058 RADIANS)

A3-.48

S-1.24 DEGREES (.021 RADIANS)

A4-4.22

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

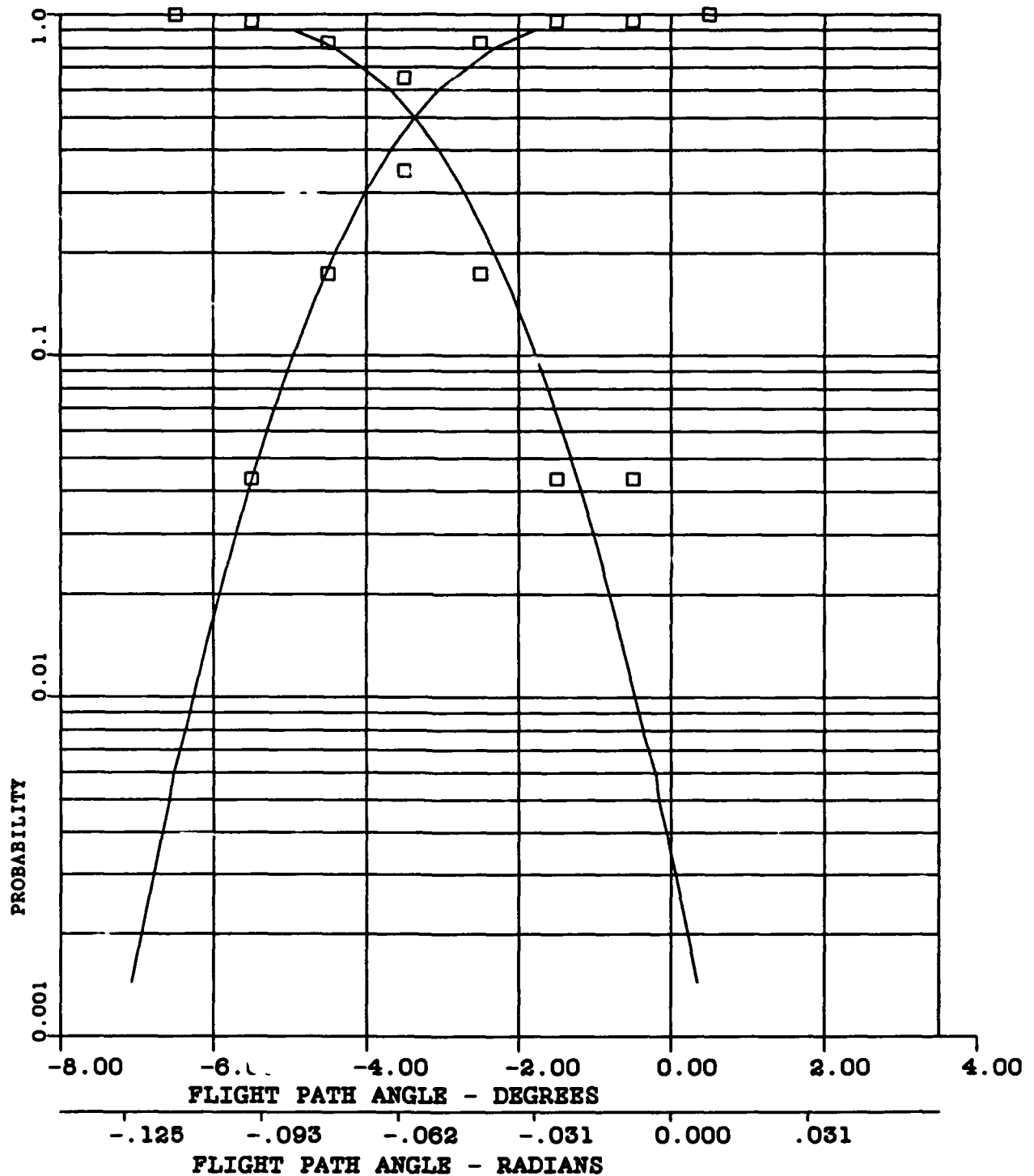


FIGURE P-54 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

PRESNEL LENS SETTING-3.60 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -6.55 DEGREES (.114 RADIANS)

A3--.57

S-2.92 DEGREES (.051 RADIANS)

A4-2.53

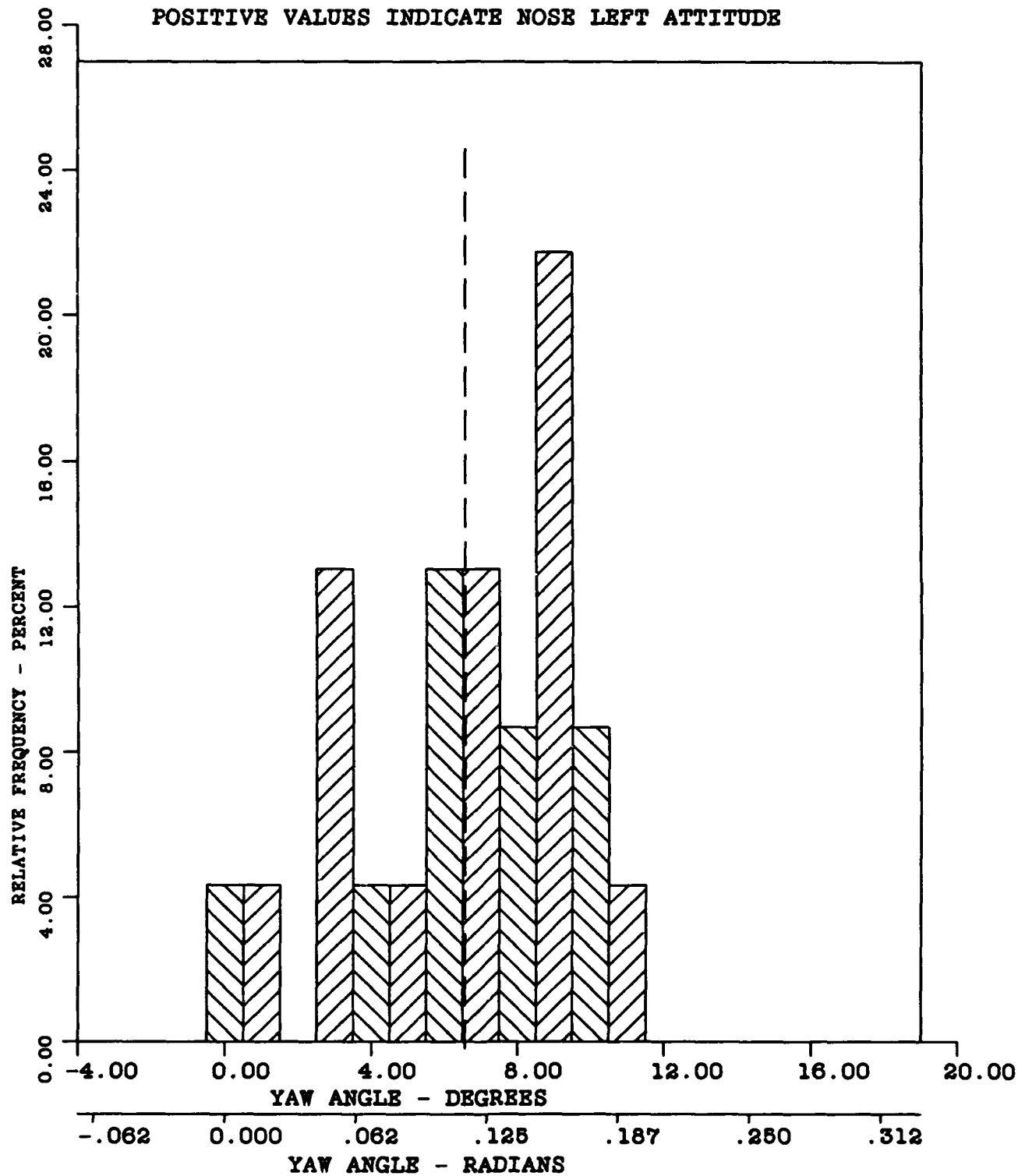


FIGURE P-55 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL A-3 AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING-3.50 DEGREES (.061 RADIANS)

N-23

 $\bar{X}$ -6.55 DEGREES (.114 RADIANS)

A3--.57

S-2.92 DEGREES (.051 RADIANS)

A4-2.53

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

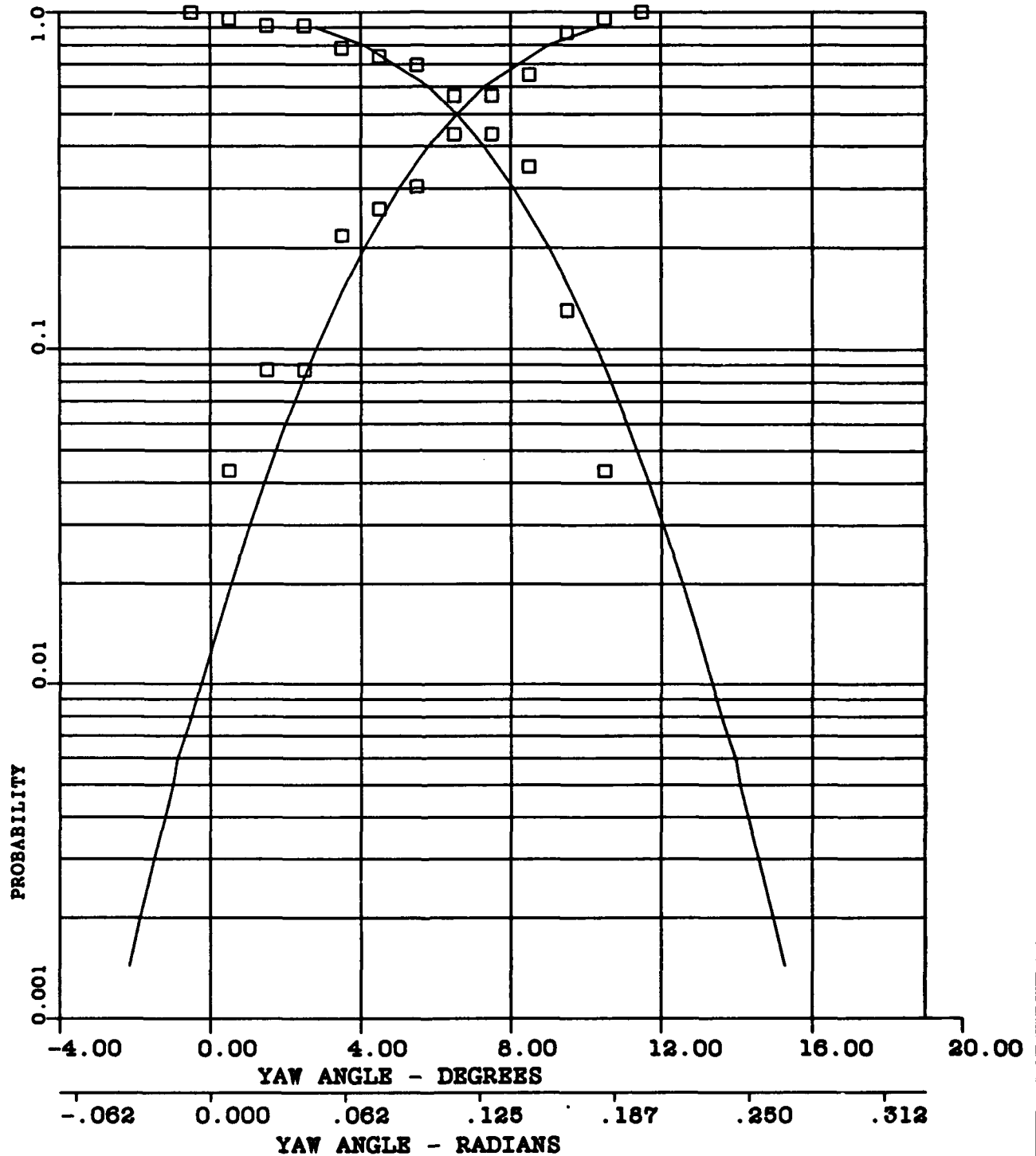


FIGURE P-56 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE



# **APPENDIX Q**

## **T-2C AIRCRAFT DAY CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

Appendix Q:

Frequency and Probability Distributions,  
T-2C Aircraft, Day Landings

List of Figures:

1. Model T-2C Aircraft, Day Landings, Frequency Distribution of Wind Over Deck
2. Model T-2C Aircraft, Day Landings, Probability Distribution of Wind Over Deck
3. Model T-2C Aircraft, Day Landings, Frequency Distribution of Power Approach Airspeed
4. Model T-2C Aircraft, Day Landings, Probability Distribution of Power Approach Airspeed
5. Model T-2C Aircraft, Day Landings, Frequency Distribution of Wheel Height above Carrier Ramp
6. Model T-2C Aircraft, Day Landings, Probability Distribution of Wheel Height above Carrier Ramp
7. Model T-2C Aircraft, Day Landings, Frequency Distribution of Nose Wheel Sinking Speed
8. Model T-2C Aircraft, Day Landings, Probability Distribution of Nose Wheel Sinking Speed
9. Model T-2C Aircraft, Day Landings, Frequency Distribution of Port Wheel Sinking Speed
10. Model T-2C Aircraft, Day Landings, Probability Distribution of Port Wheel Sinking Speed
11. Model T-2C Aircraft, Day Landings, Frequency Distribution of Starboard Wheel Sinking Speed
12. Model T-2C Aircraft, Day Landings, Probability Distribution of Starboard Wheel Sinking Speed
13. Model T-2C Aircraft, Day Landings, Frequency Distribution of Average Sinking Speed at First Main Wheel Touchdown
14. Model T-2C Aircraft, Day Landings, Probability Distribution of Average Sinking Speed at First Main Wheel Touchdown
15. Model T-2C Aircraft, Day Landings, Frequency Distribution of Average Sink Speed at Free Flight
16. Model T-2C Aircraft, Day Landings, Probability Distribution of Average Sink Speed at Free Flight
17. Model T-2C Aircraft, Day Landings, Frequency Distribution of Wing Lift Factor at First Main Wheel Touchdown
18. Model T-2C Aircraft, Day Landings, Probability Distribution of Wing Lift Factor at First Main Wheel Touchdown
19. Model T-2C Aircraft, Day Landings, Frequency Distribution of Wing Lift Factor at Free Flight
20. Model T-2C Aircraft, Day Landings, Probability Distribution of Wing Lift Factor at Free Flight
21. Model T-2C Aircraft, Day Landings, Frequency Distribution of Aircraft Pitch Angle at the Ramp
22. Model T-2C Aircraft, Day Landings, Probability Distribution of Aircraft Pitch Angle at the Ramp

23. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Pitch Angle at First Main Wheel Touchdown
24. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Pitch Angle at First Main Wheel Touchdown
25. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Pitch Angle at Free Flight
26. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Pitch Angle at Free Flight
27. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Roll Angle at the Ramp
28. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Roll Angle at the Ramp
29. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Roll Angle at First Main Wheel Touchdown
30. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Roll Angle at First Main Wheel Touchdown
31. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Roll Angle at Free Flight
32. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Roll Angle at Free Flight
33. Model T-20 Aircraft, Day Landings, Frequency Distribution of Distance from Ramp to First Main Wheel Touchdown Point
34. Model T-20 Aircraft, Day Landings, Probability Distribution of Distance from Ramp to First Main Wheel Touchdown Point
35. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Off Center Distance at First Main Wheel Touchdown Point
36. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Off Center Distance at First Main Wheel Touchdown Point
37. Model T-20 Aircraft, Day Landings, Frequency Distribution Arresting Gear Wire Engaged
38. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Glide Angle, Instantaneous Method
39. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Glide Angle, Geometric Method
40. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Arresting Hook above Carrier Ramp
41. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Arresting Hook above Carrier Ramp
42. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Engaging Speed at First Main Wheel Touchdown
43. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Engaging Speed at First Main Wheel Touchdown

44. Model T-20 Aircraft, Day Landings, Frequency Distribution of Minimum Usable Power Approach Airspeed
45. Model T-20 Aircraft, Day Landings, Frequency Distribution of Minimum Usable Power Approach Speed Ratio
46. Model T-20 Aircraft, Day Landings, Frequency Distribution of Carrier Deck Roll Motion
47. Model T-20 Aircraft, Day Landings, Probability Distribution of Carrier Deck Roll Motion
48. Model T-20 Aircraft, Day Landings, Frequency Distribution of Carrier Deck Pitch Motion
49. Model T-20 Aircraft, Day Landings, Probability Distribution of Carrier Deck Pitch Motion
50. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Landing Weight
51. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Roll Rate
52. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Roll Rate
53. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Pitch Rate
54. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Pitch Rate
55. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Flight Path Angle at Touchdown
56. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Flight Path Angle at Touchdown
57. Model T-20 Aircraft, Day Landings, Frequency Distribution of Aircraft Yaw Angle at Touchdown
58. Model T-20 Aircraft, Day Landings, Probability Distribution of Aircraft Yaw Angle at Touchdown

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

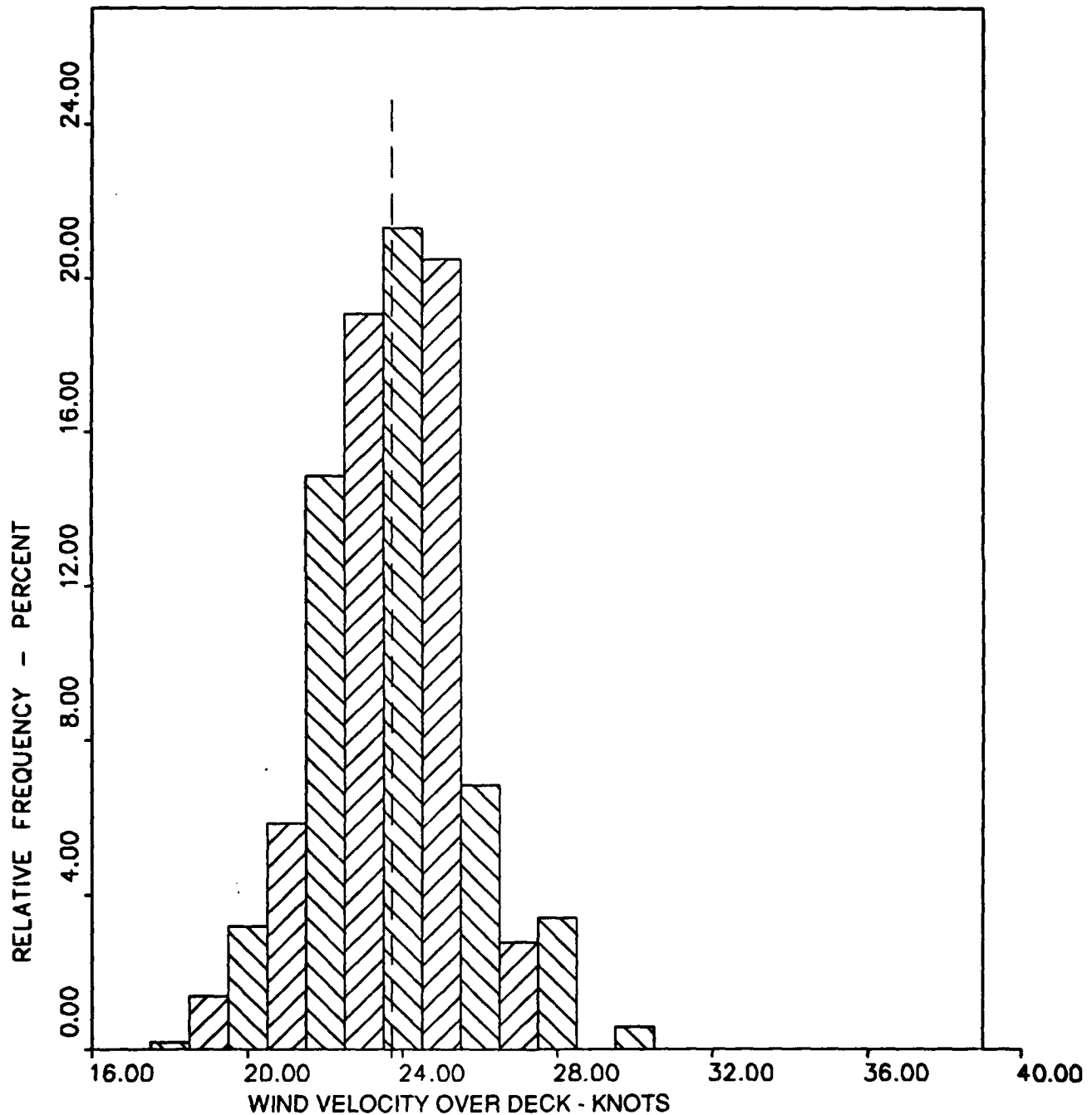
N= 498

 $\bar{X}$ = 23.72 KNOTS

S= 1.91 KNOTS

A3= 0.12

A4= 3.44

FIGURE Q-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

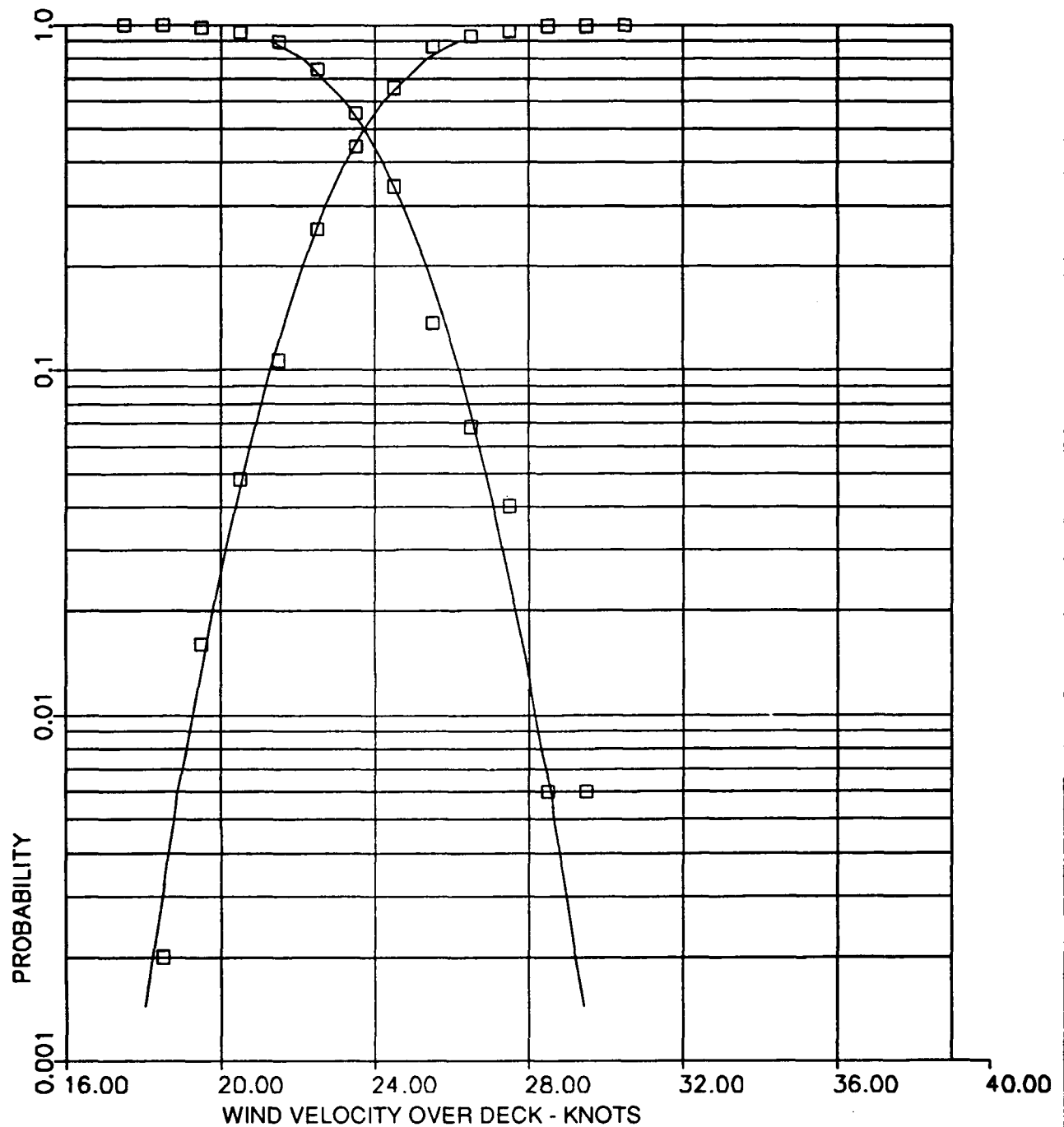
 $\bar{X}$ = 23.72 KNOTS

S= 1.91 KNOTS

CURVE FITTED - NORMAL

A3= 0.12

A4= 3.44

FIGURE Q-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 106.08 KNOTS

S= 5.41 KNOTS

A3= 0.31

A4= 3.83

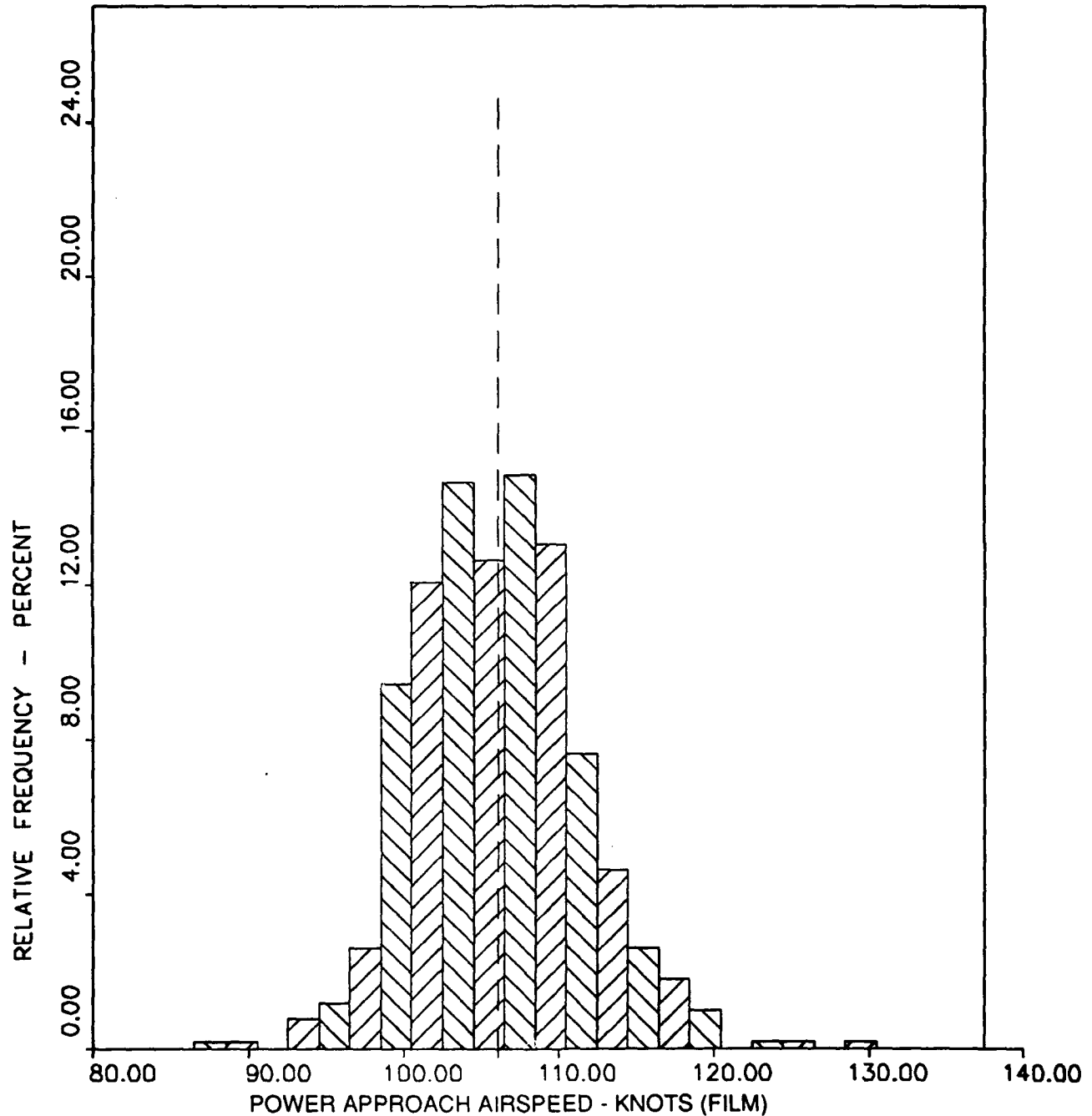


FIGURE Q-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

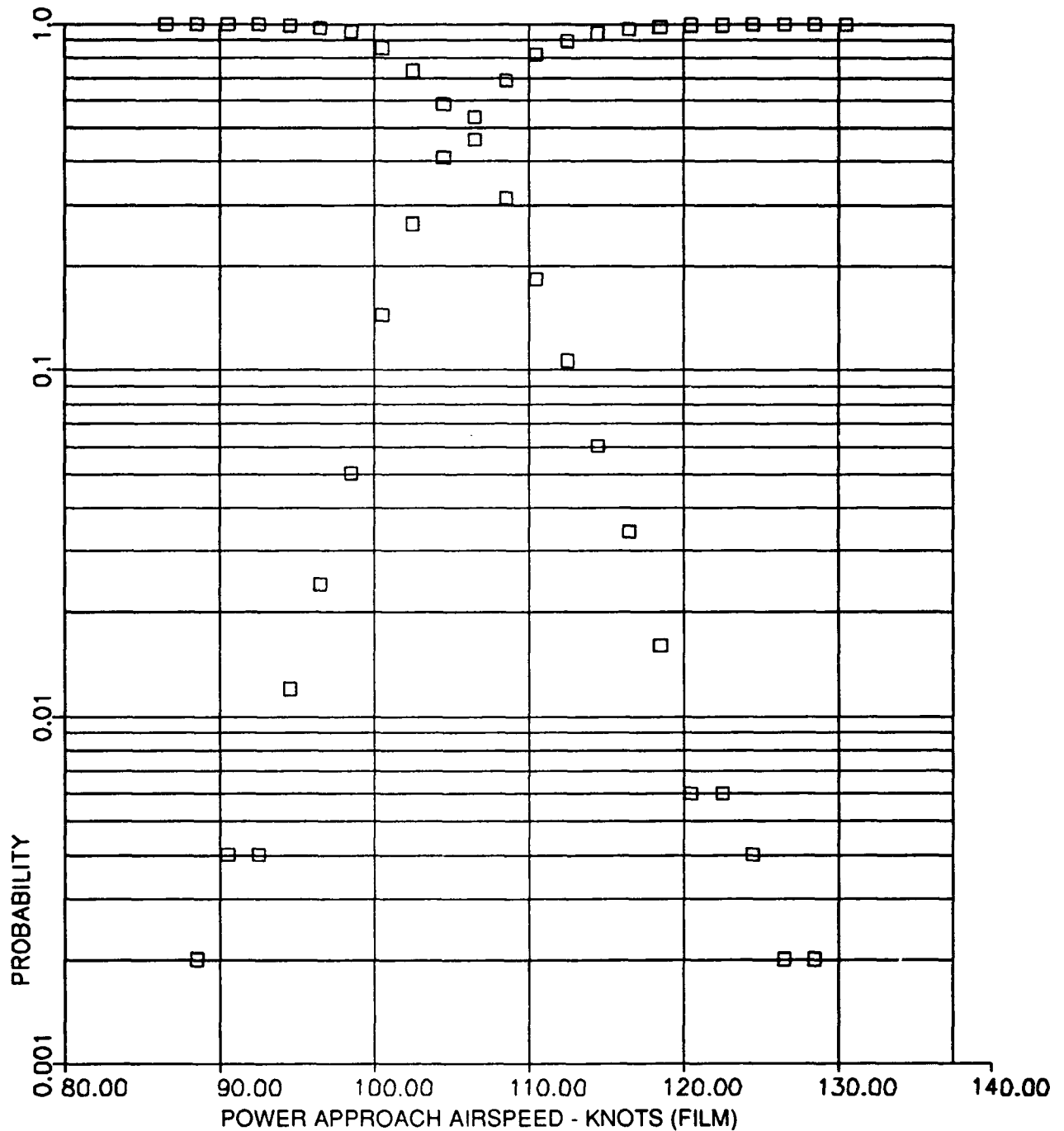
 $\bar{X}$ = 106.08 KNOTS

S= 5.41 KNOTS

CURVE FITTED - PEARSON TYPE III

A3= 0.31

A4= 3.83

FIGURE Q-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)



MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 490

 $\bar{X}$ = 15.74 FEET

S= 3.04 FEET

A3= 0.20

A4= 2.93

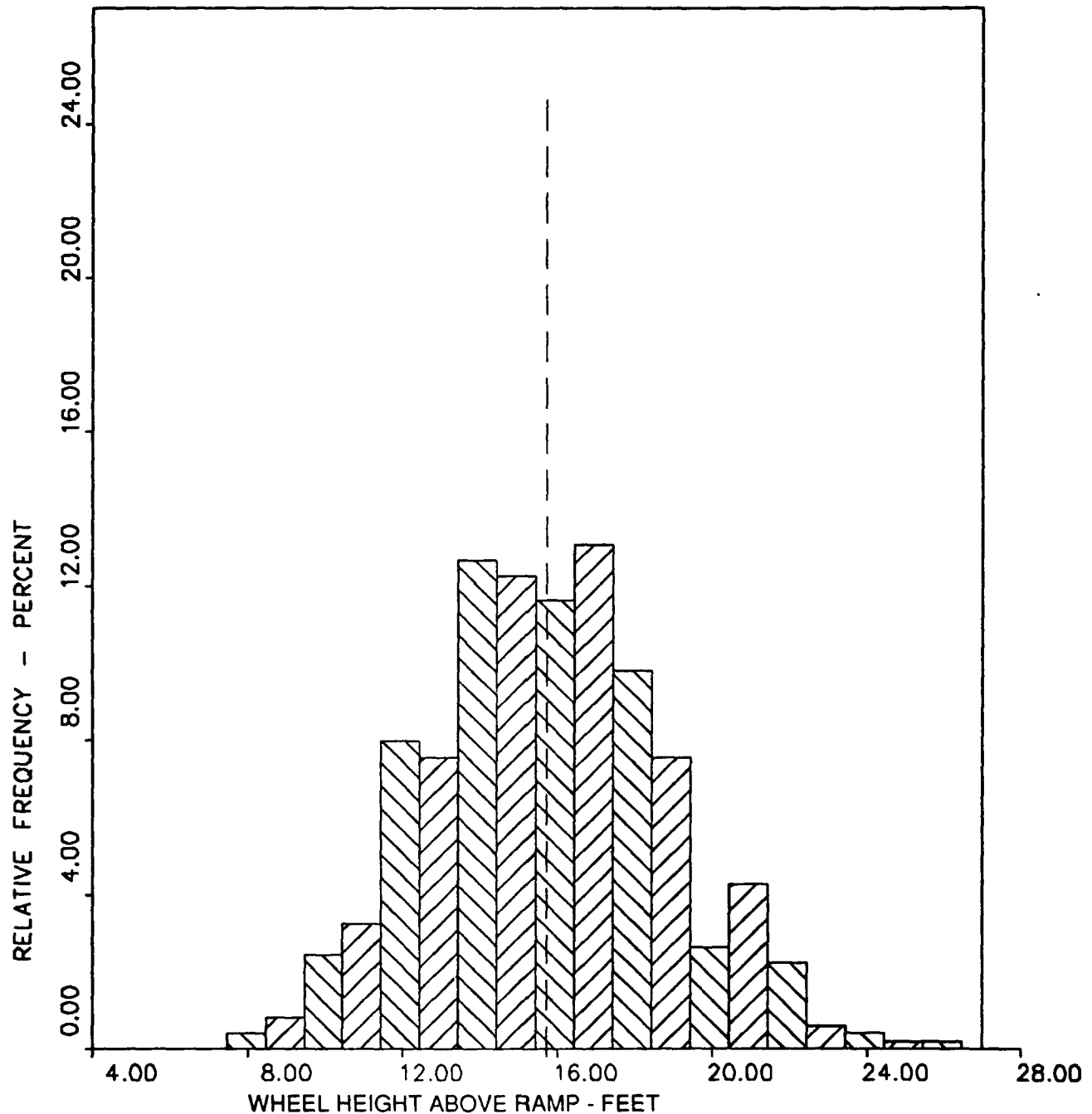


FIGURE Q-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 490

 $\bar{X}$ = 15.74 FEET

S= 3.04 FEET

CURVE FITTED - NORMAL

A3= 0.20

A4= 2.93

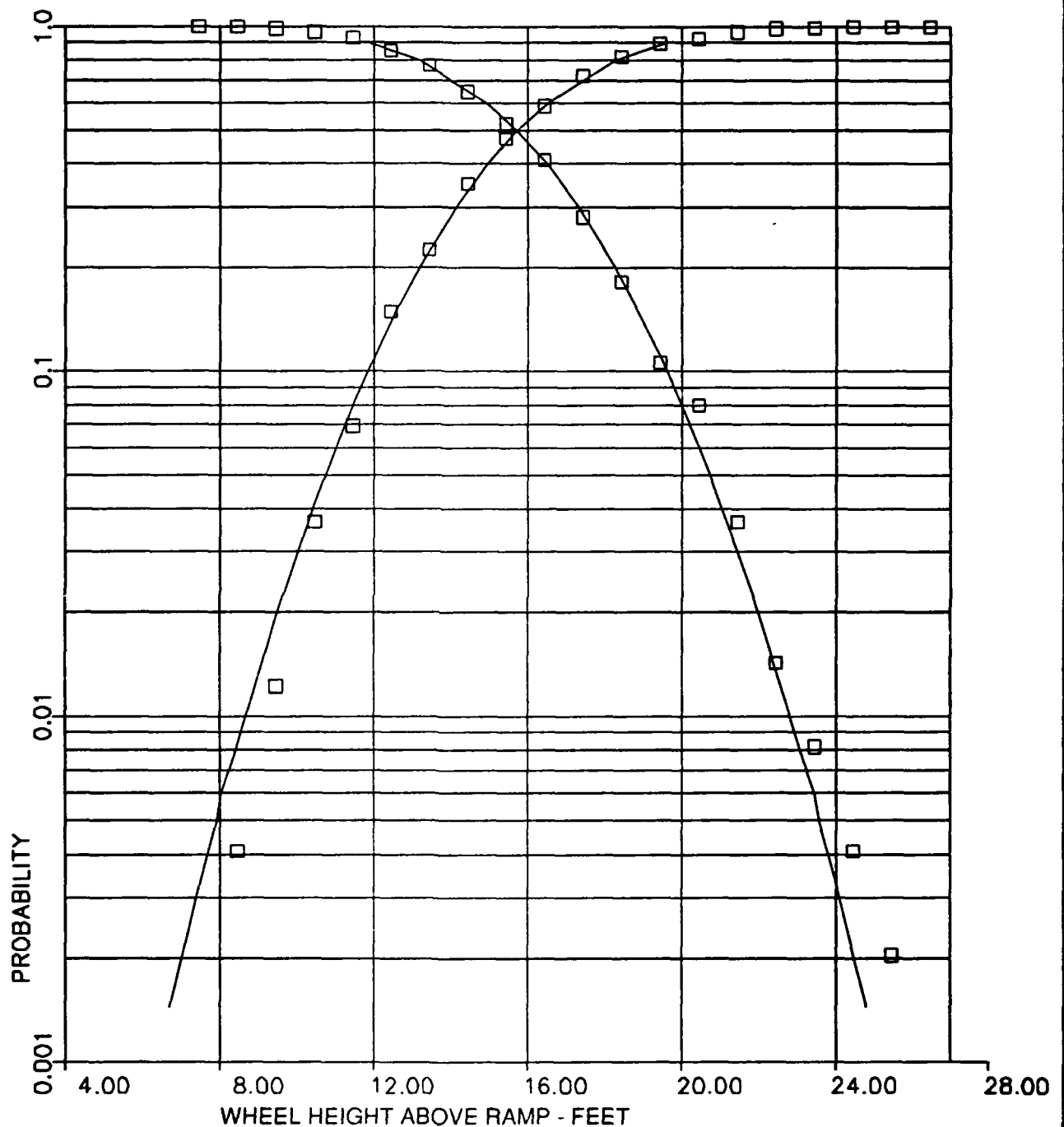


FIGURE Q-6 PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

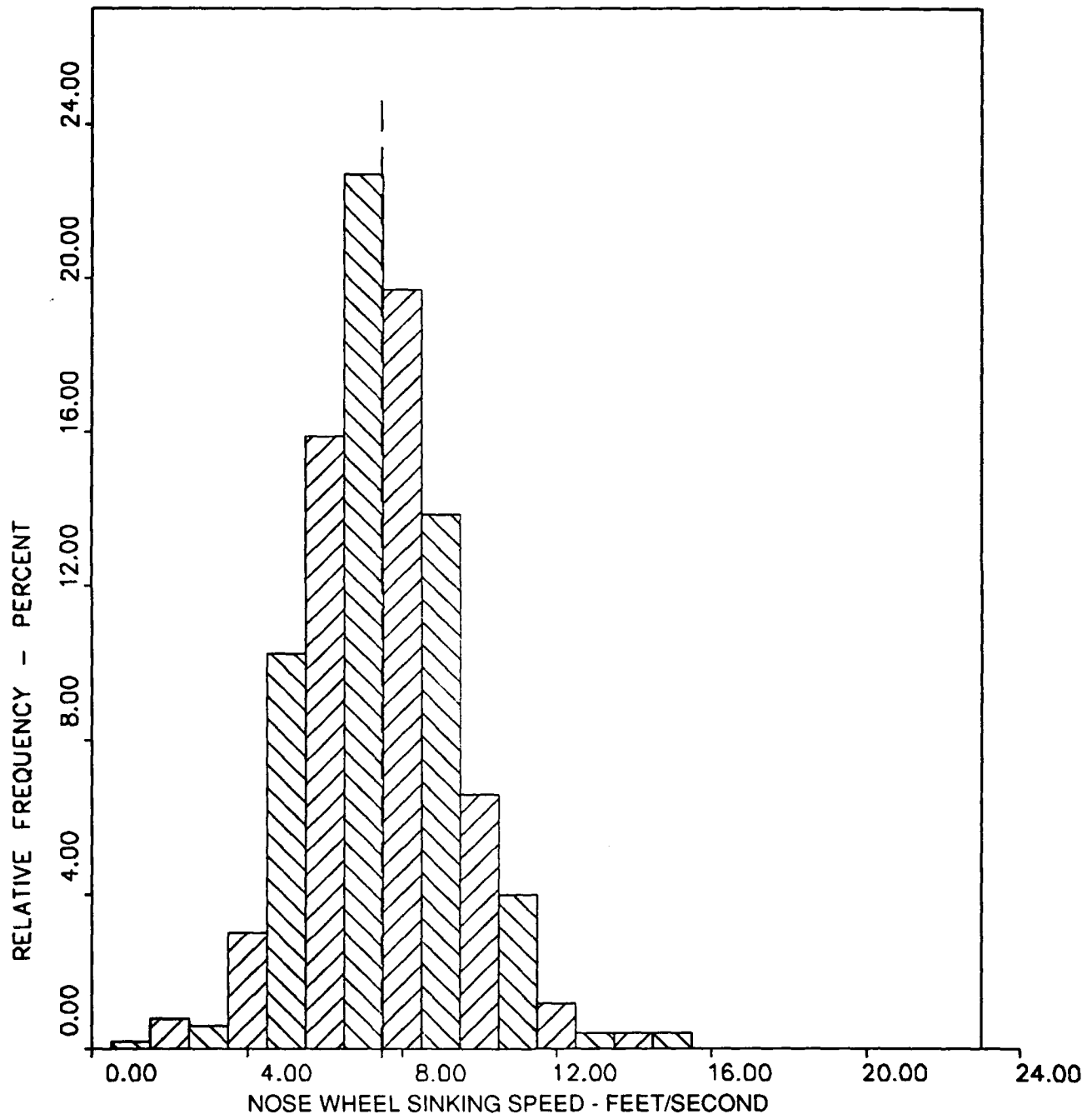
N= 498

 $\bar{X}$ = 7.45 FEET/SEC

S= 1.94 FEET/SEC

A3= 0.37

A4= 4.02

FIGURE Q-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

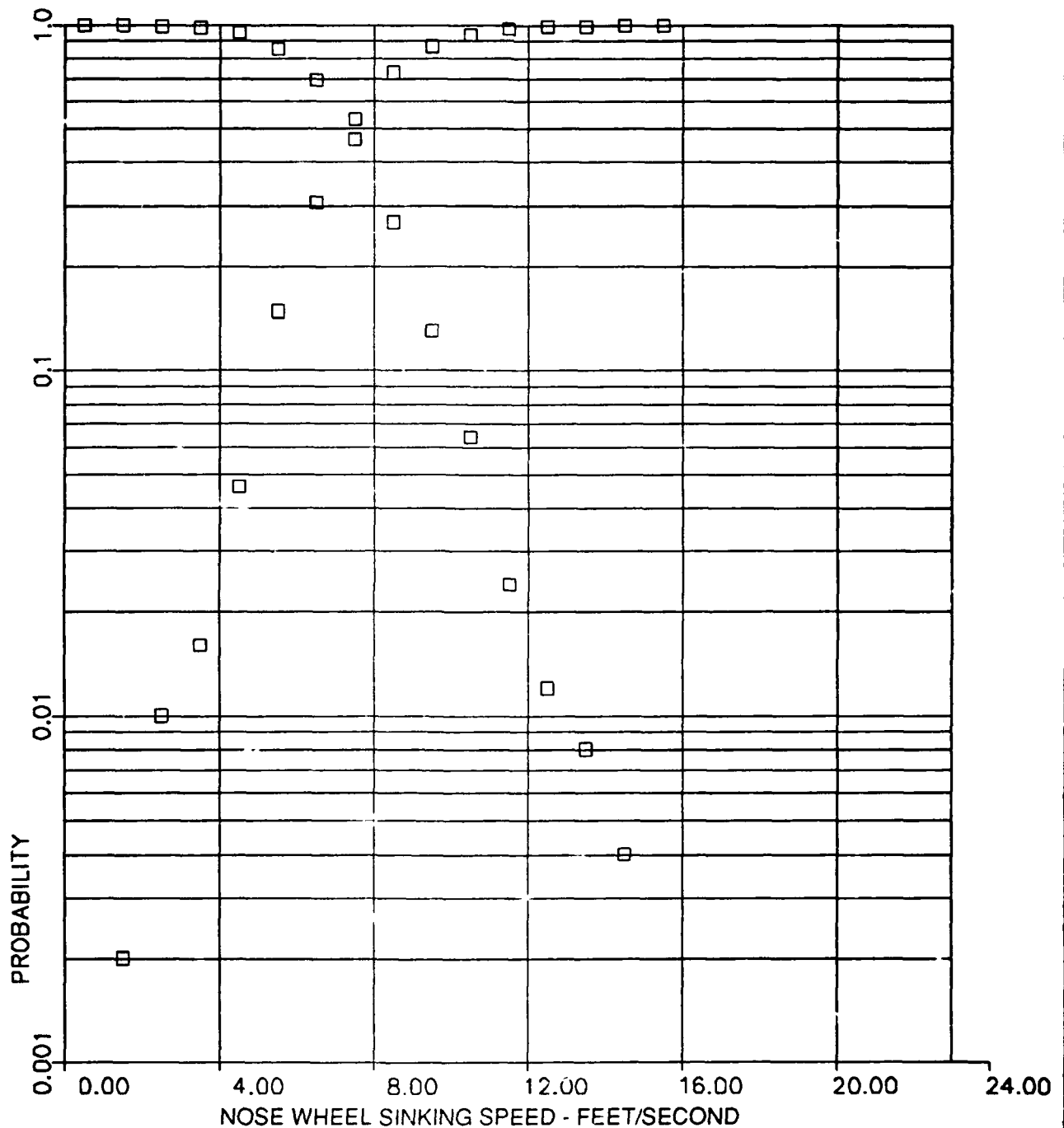
 $\bar{X}$ = 7.45 FEET/SEC

S= 1.94 FEET/SEC

CURVE FITTED - PEARSON TYPE III

A3= 0.37

A4= 4.02

FIGURE Q-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 7.87 FEET/SEC

S= 2.28 FEET/SEC

A3= 0.42

A4= 4.44

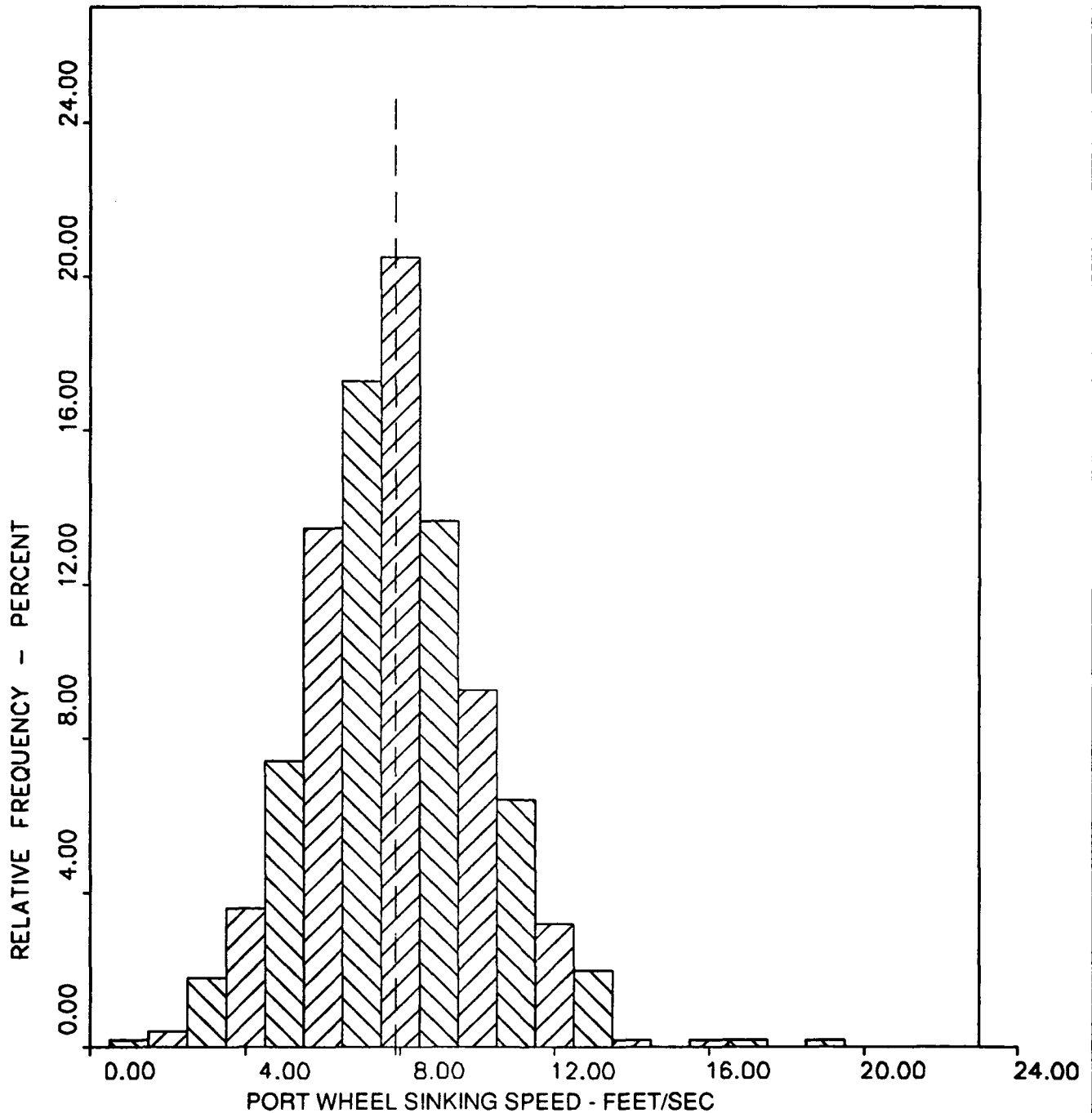


FIGURE Q-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 7.87 FEET/SEC

S= 2.28 FEET/SEC

CURVE FITTED - PEARSON TYPE III

A3= 0.42

A4= 4.44

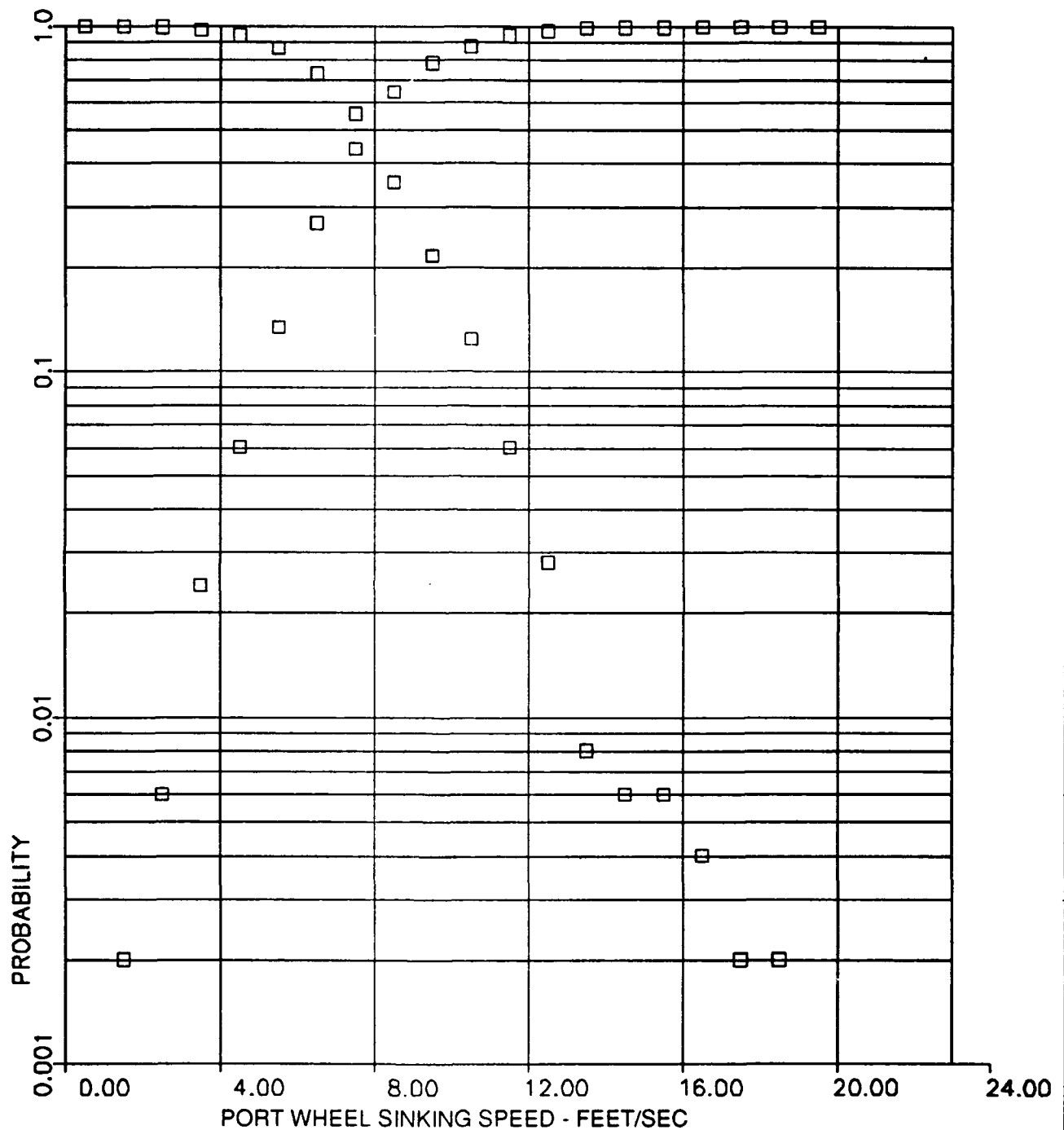


FIGURE Q-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 7.23 FEET/SEC

S= 2.15 FEET/SEC

A3= 0.59

A4= 4.17

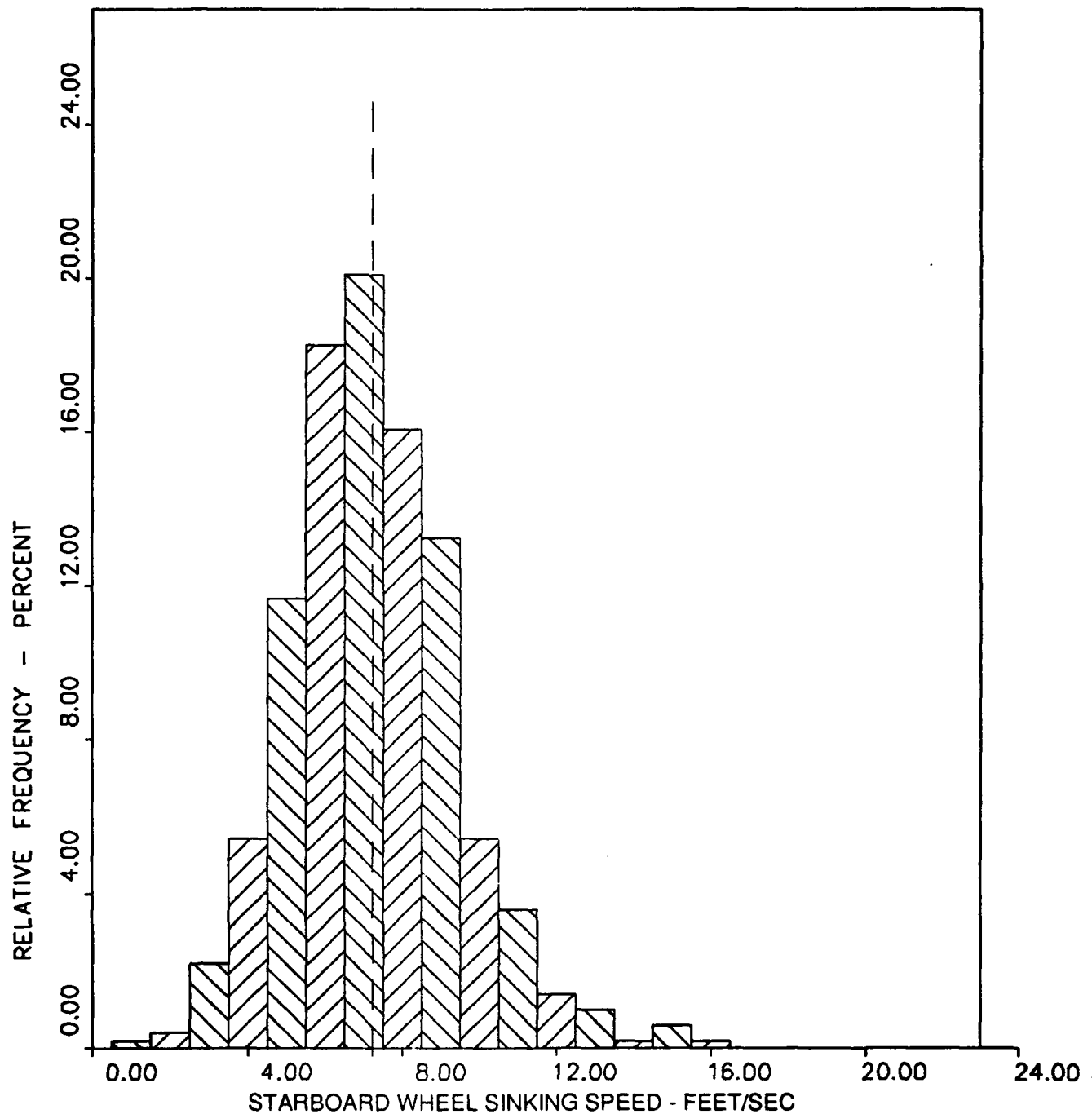


FIGURE Q-11 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

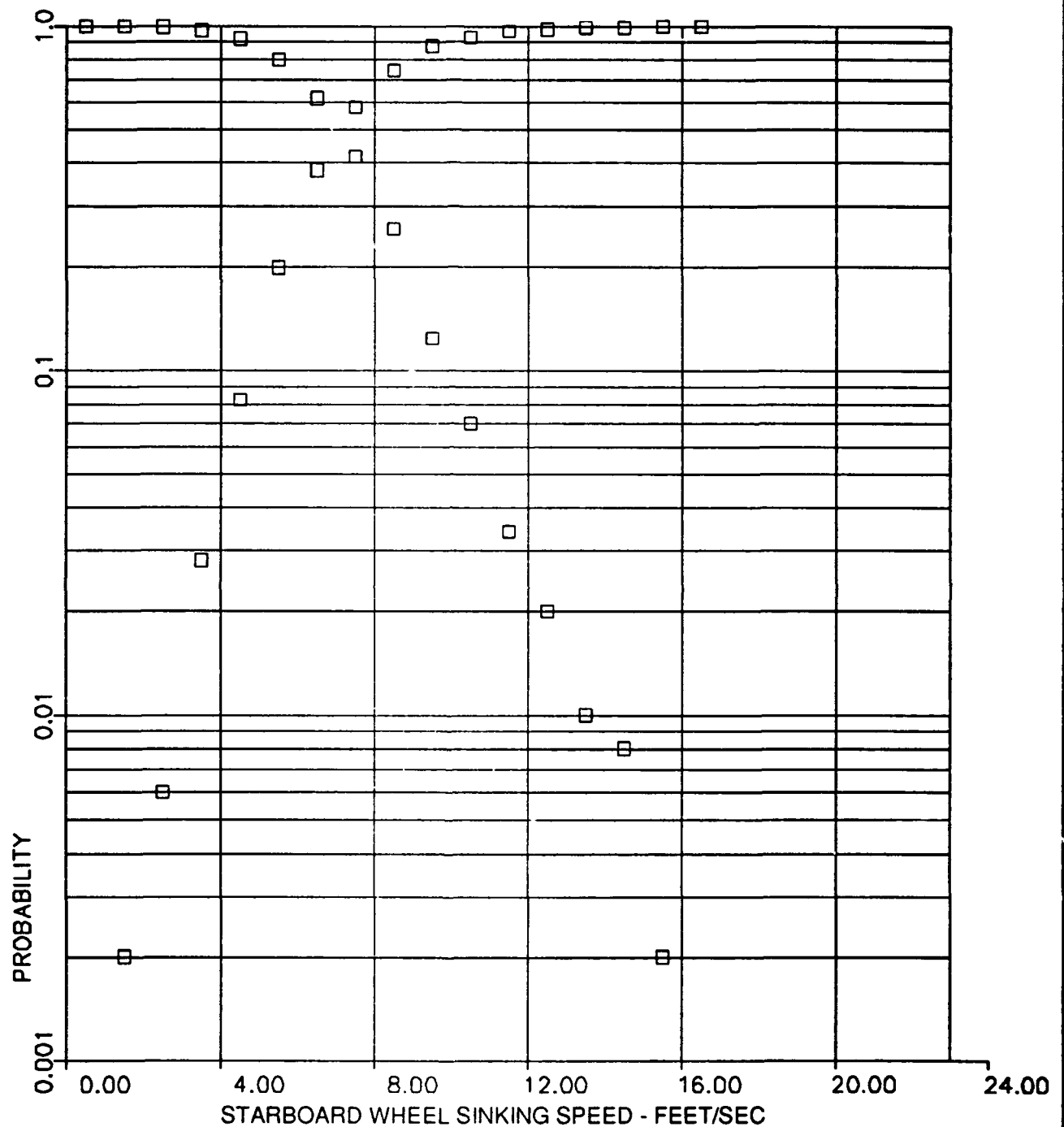
 $\bar{X}$ = 7.23 FEET/SEC

S= 2.15 FEET/SEC

CURVE FITTED - PEARSON TYPE III

A3= 0.59

A4= 4.17

FIGURE Q-12 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED



MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 7.46 FEET/SEC

S= 1.94 FEET/SEC

A3= 0.62

A4= 4.48

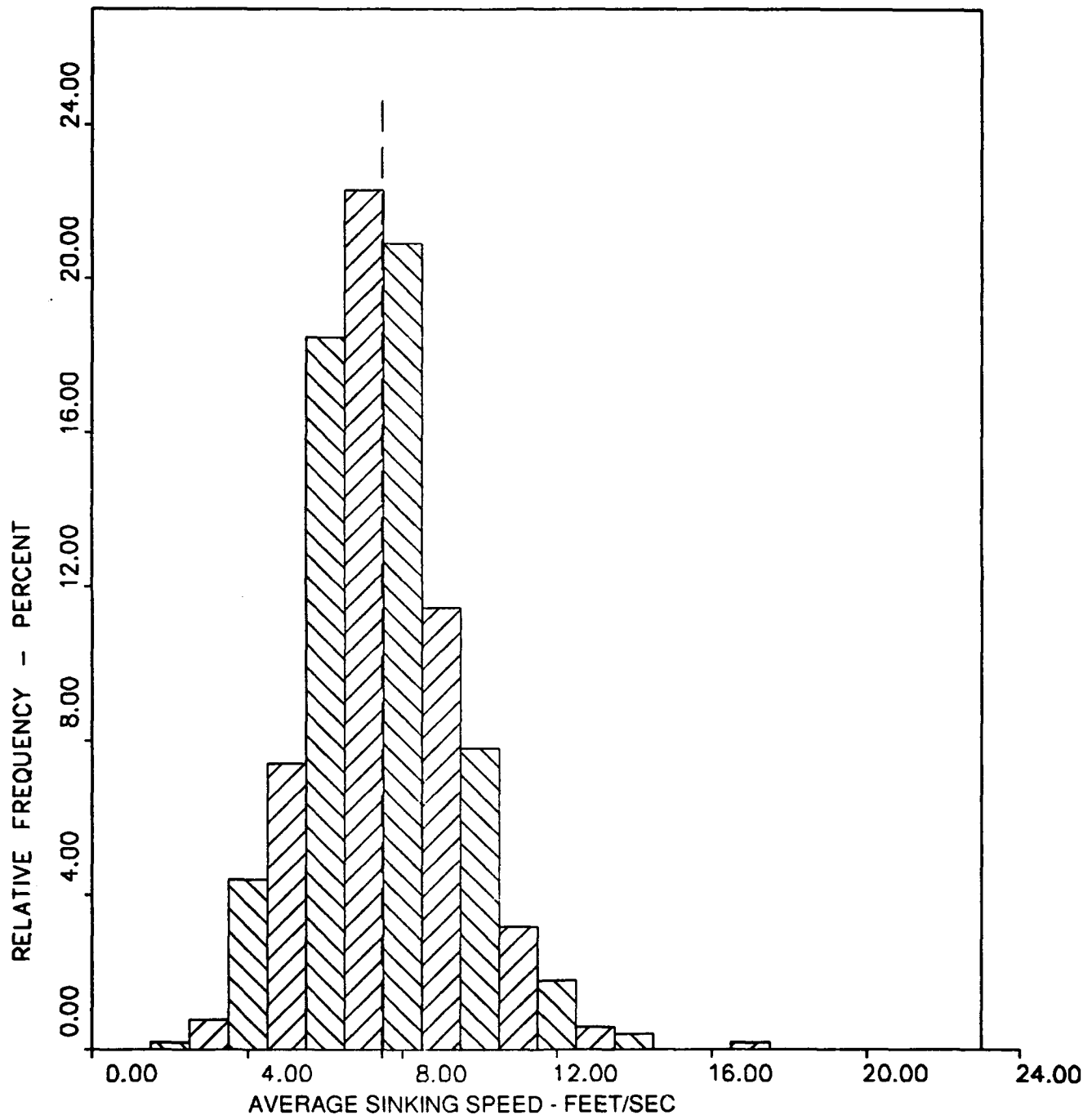


FIGURE Q-13 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 7.46 FEET/SEC

S= 1.94 FEET/SEC

CURVE FITTED - PEARSON TYPE III

A3= 0.62

A4= 4.48

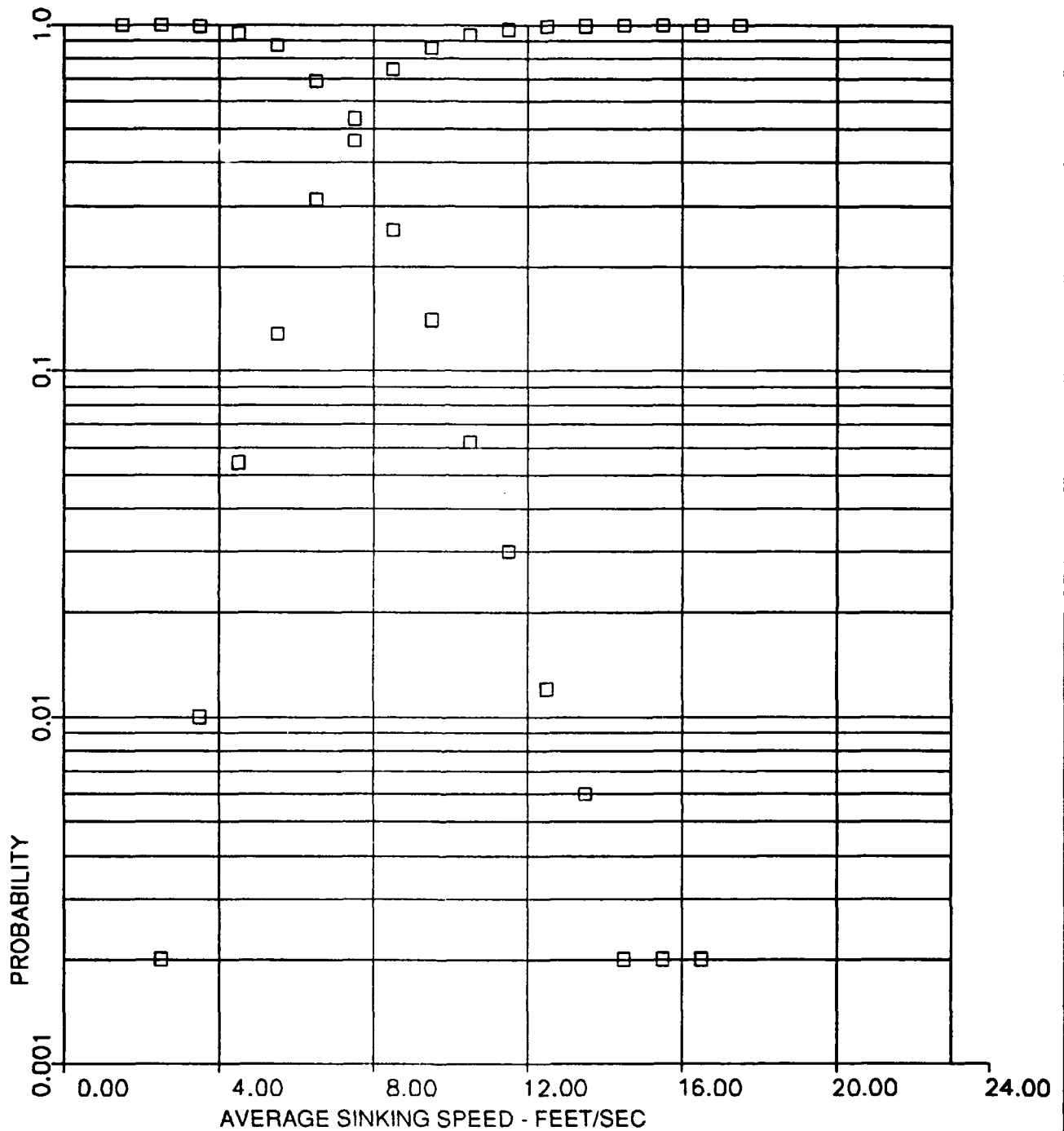


FIGURE Q-14 PROBABILITY DISTRIBUTION OF AVERAGE SINKING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 28

 $\bar{X}$ = 6.95 FEET/SEC

S= 1.86 FEET/SEC

A3= 1.46

A4= 5.85

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

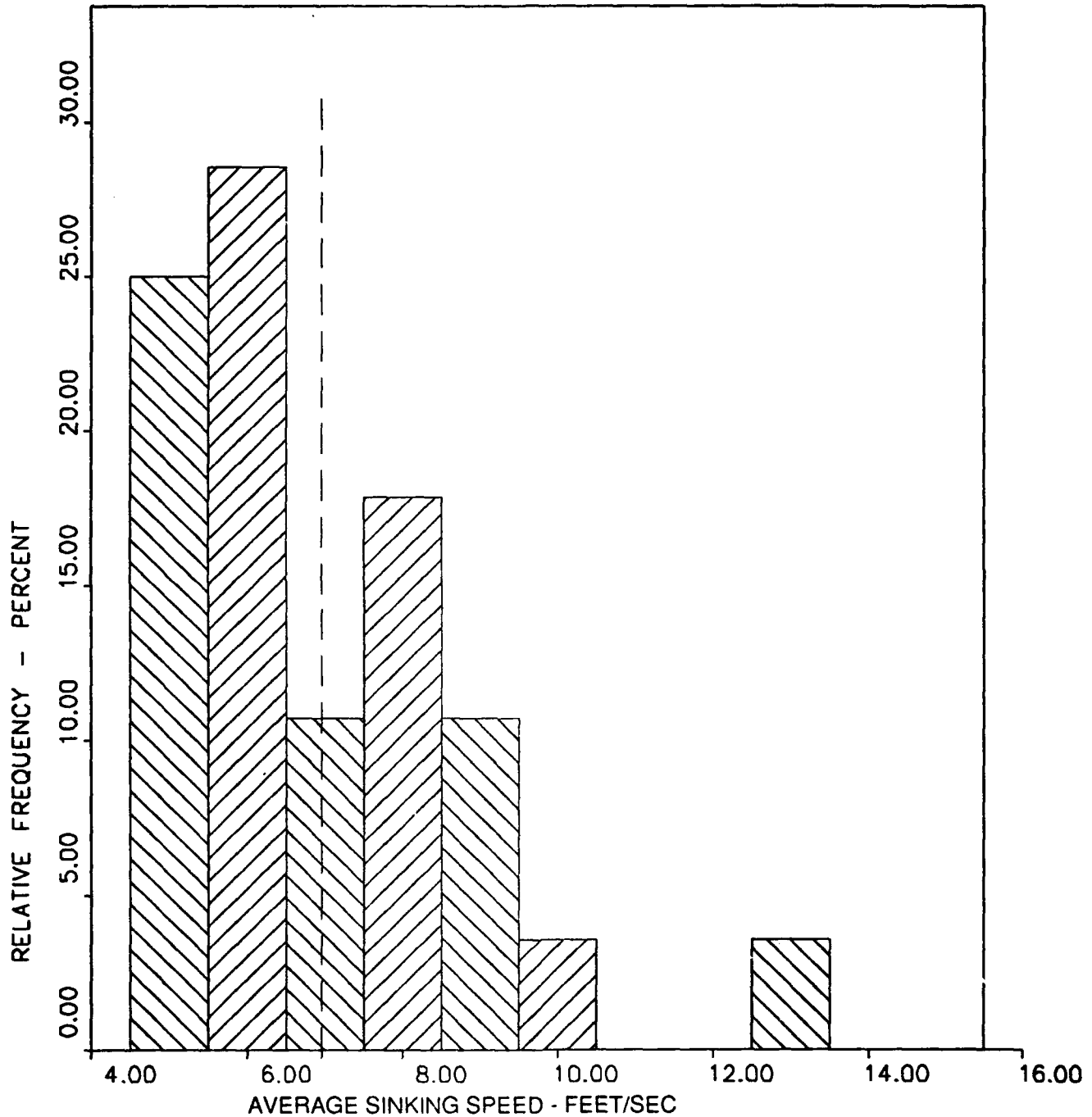


FIGURE Q-15 FREQUENCY DISTRIBUTION OF AVERAGE SINKING  
SPEED OF MAIN WHEELS AT FREE FLIGHT

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 28

 $\bar{X}$  = 6.95 FEET/SEC

S = 1.86 FEET/SEC

CURVE FITTED - PEARSON TYPE III

A3 = 1.46

A4 = 5.85

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

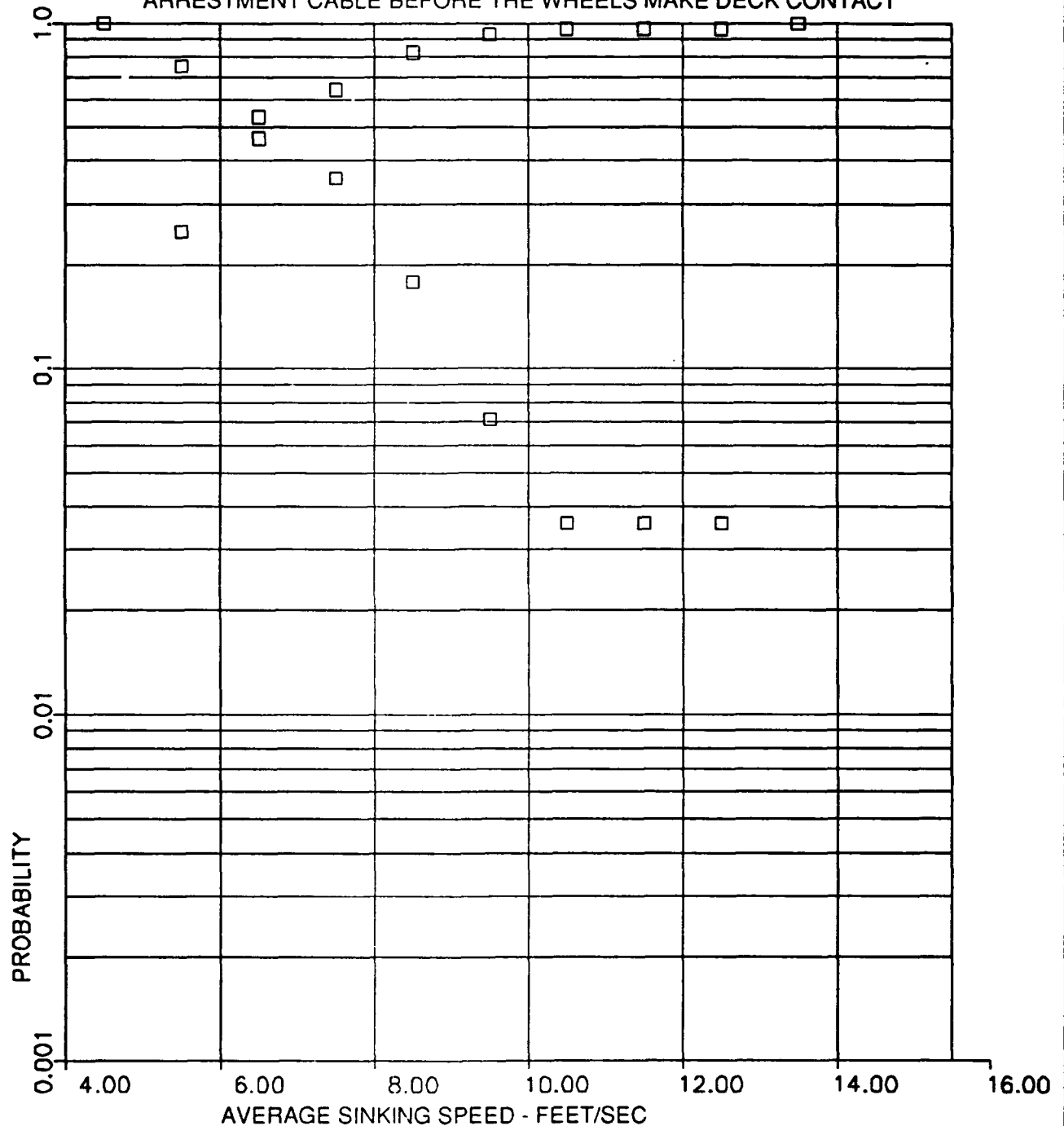


FIGURE Q-16 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING=

3.50 DEGREES

N= 498

 $\bar{X}$ = 1.04

S= 0.10

A3= 0.85

A4= 6.53

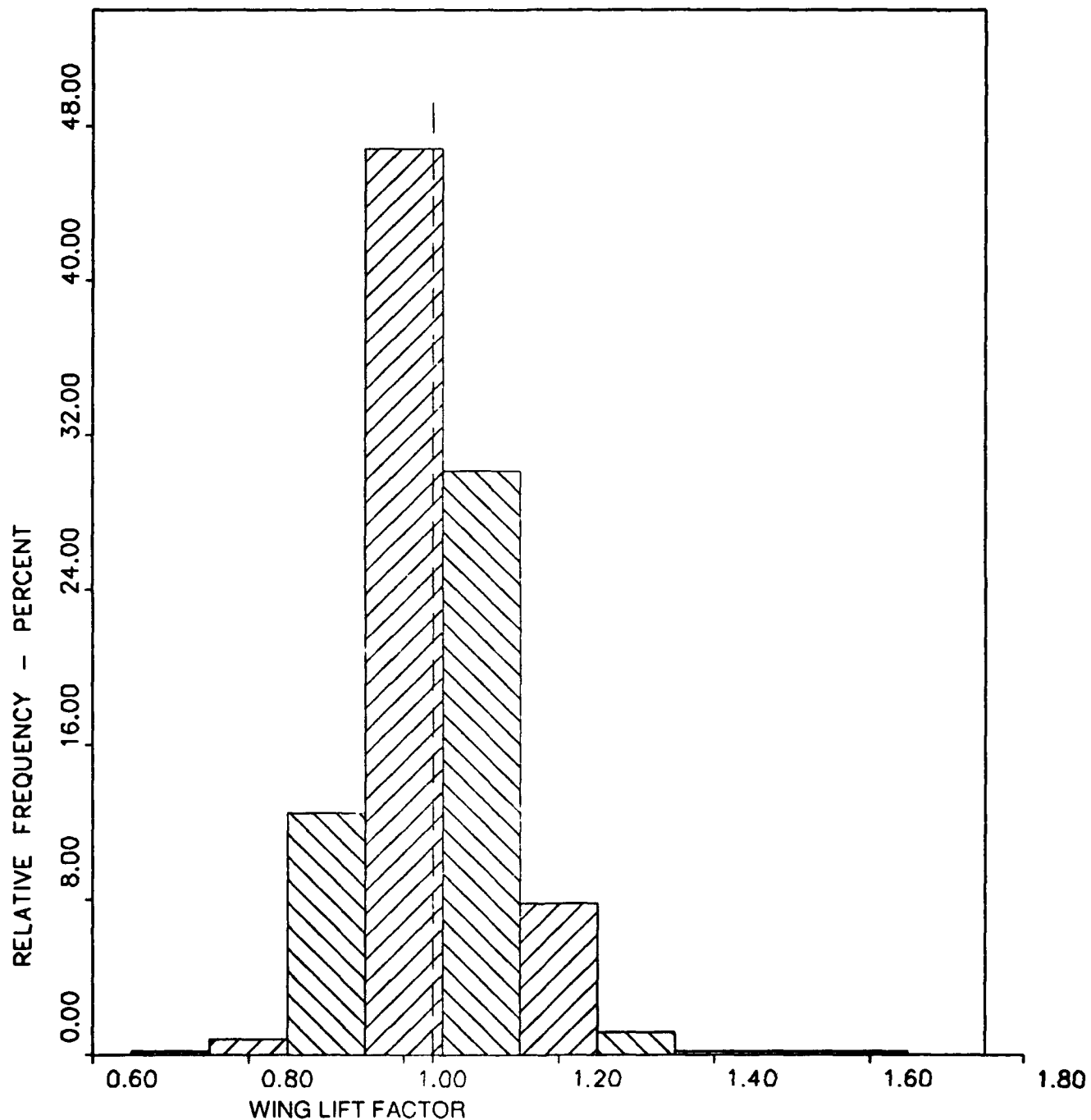


FIGURE Q-17 FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

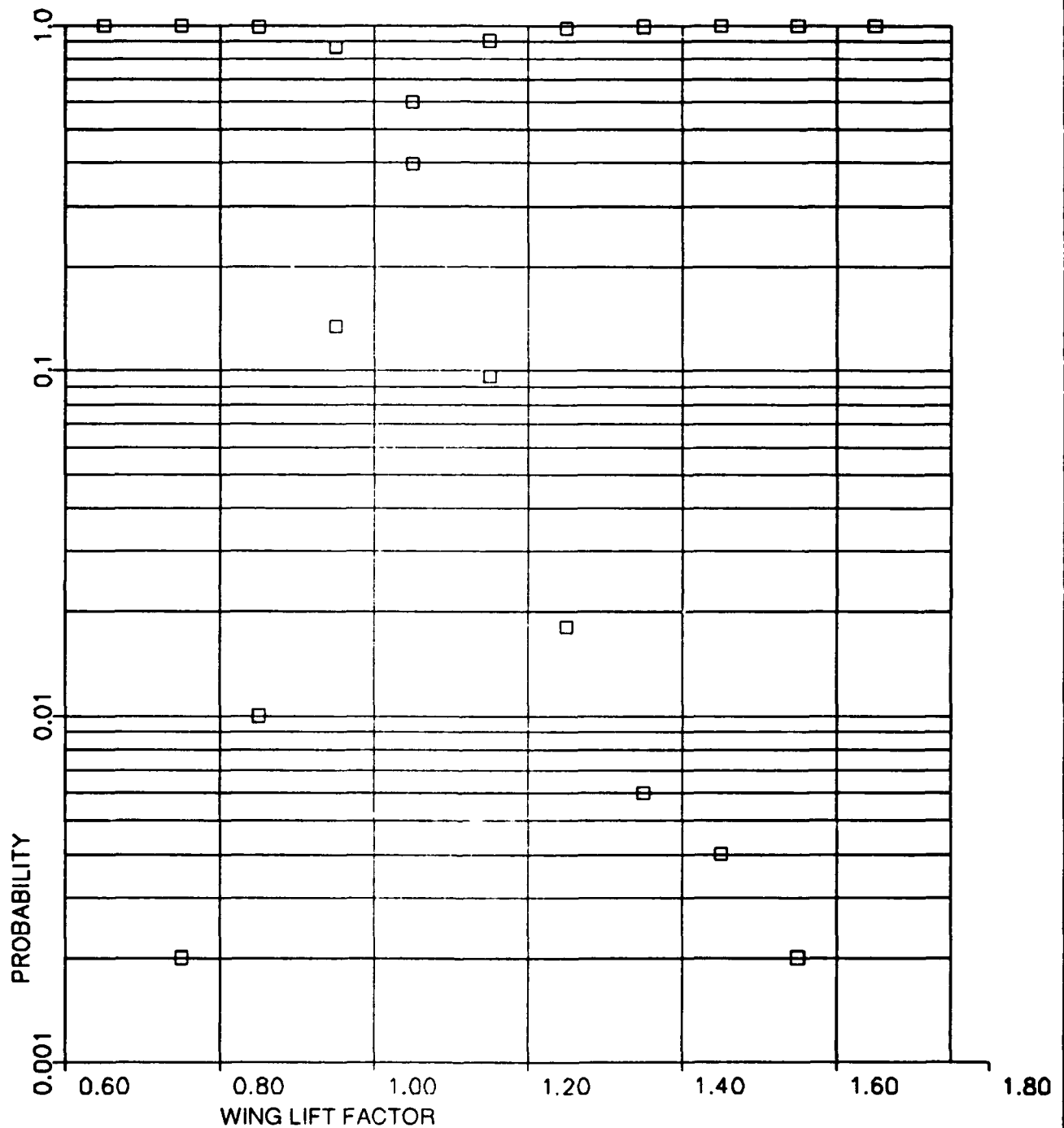
 $\bar{X}$ = 1.04

S= 0.10

CURVE FITTED - PEARSON TYPE III

A3= 0.85

A4= 6.53

FIGURE Q-19 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 28

 $\bar{X}$ = 1.08

S= 0.08

A3=-0.49

A4= 2.94

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

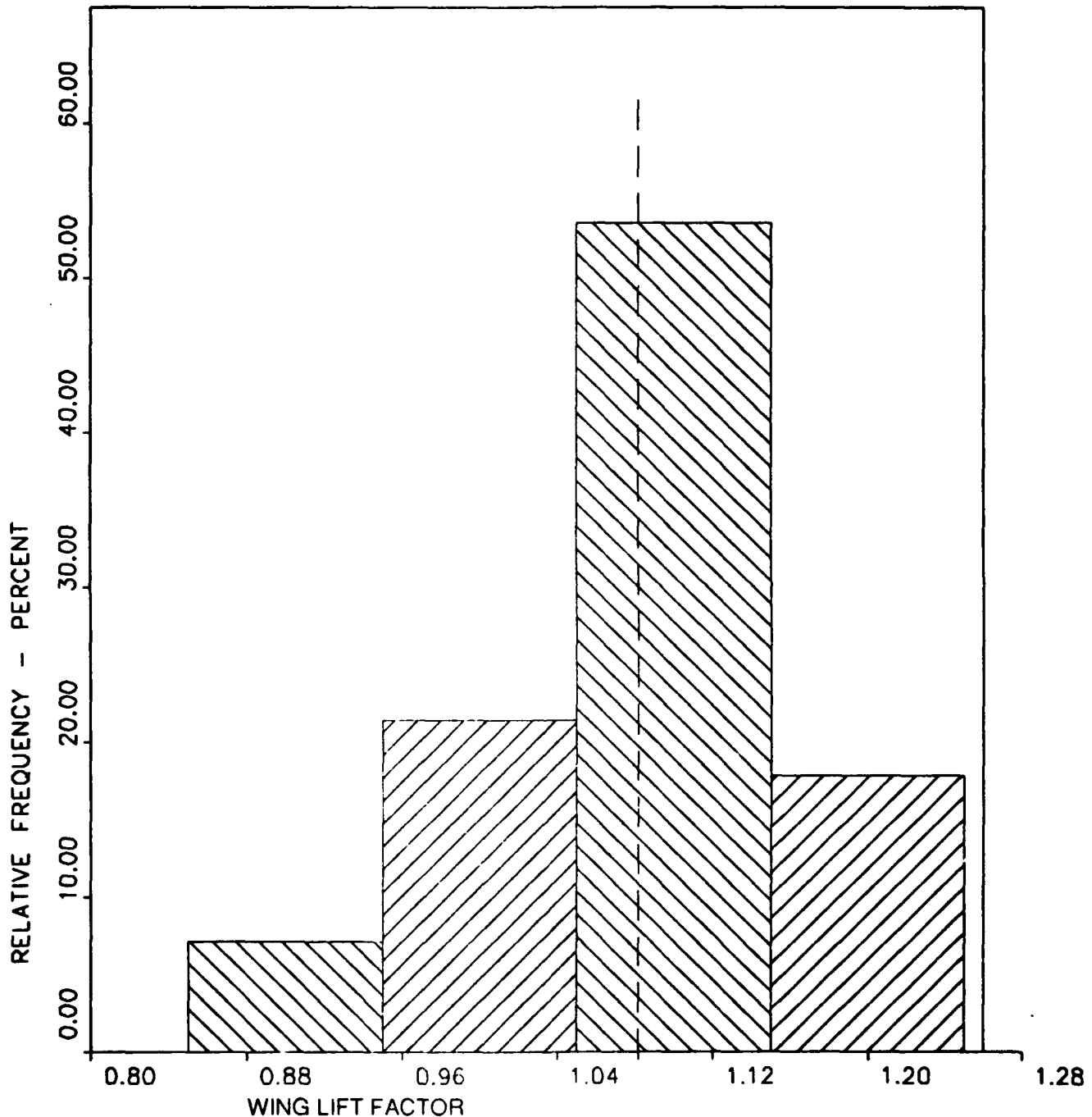


FIGURE Q-18 FREQUENCY DISTRIBUTION OF WING  
LIFT FACTOR AT FREE FLIGHT

MODEL T-2C

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 28

 $\bar{X}$ = 1.08

S= 0.08

CURVE FITTED - NORMAL

A3=-0.49

A4= 2.94

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

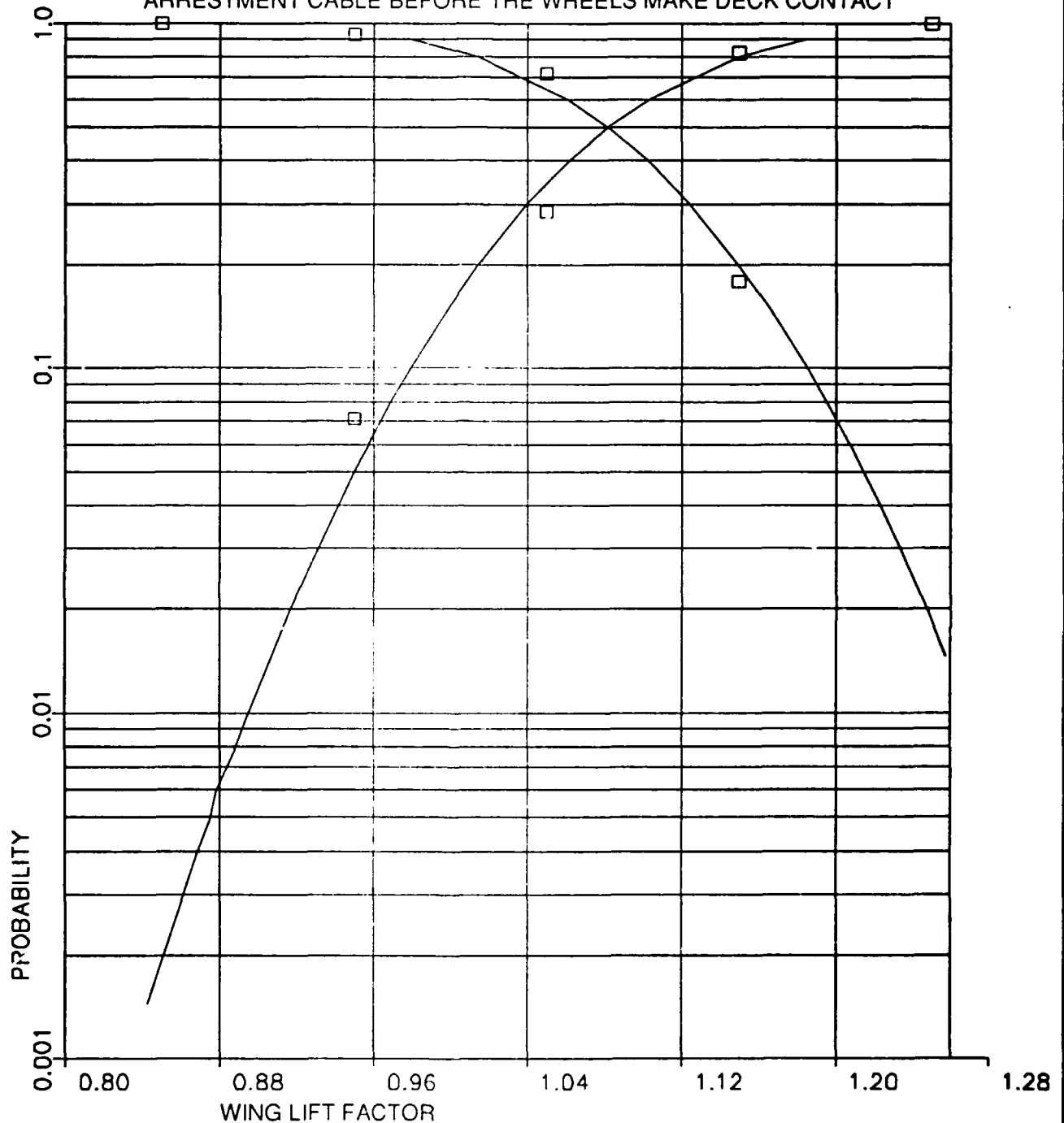


FIGURE Q-20 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT



MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

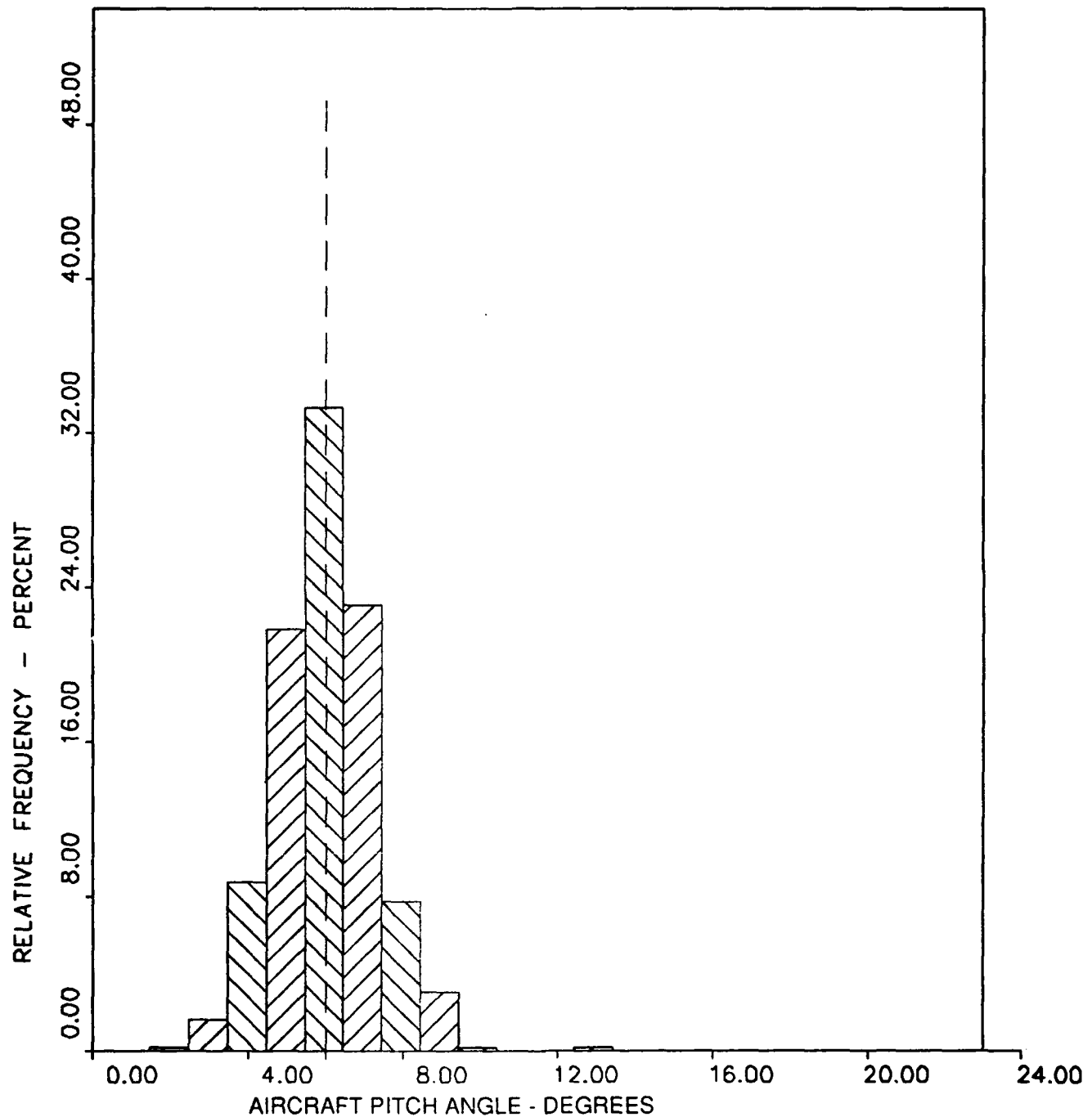
N= 490

 $\bar{X}$ = 5.99 DEGREES

S= 1.29 DEGREES

A3= 0.36

A4= 4.15

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRLFIGURE Q-21 FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

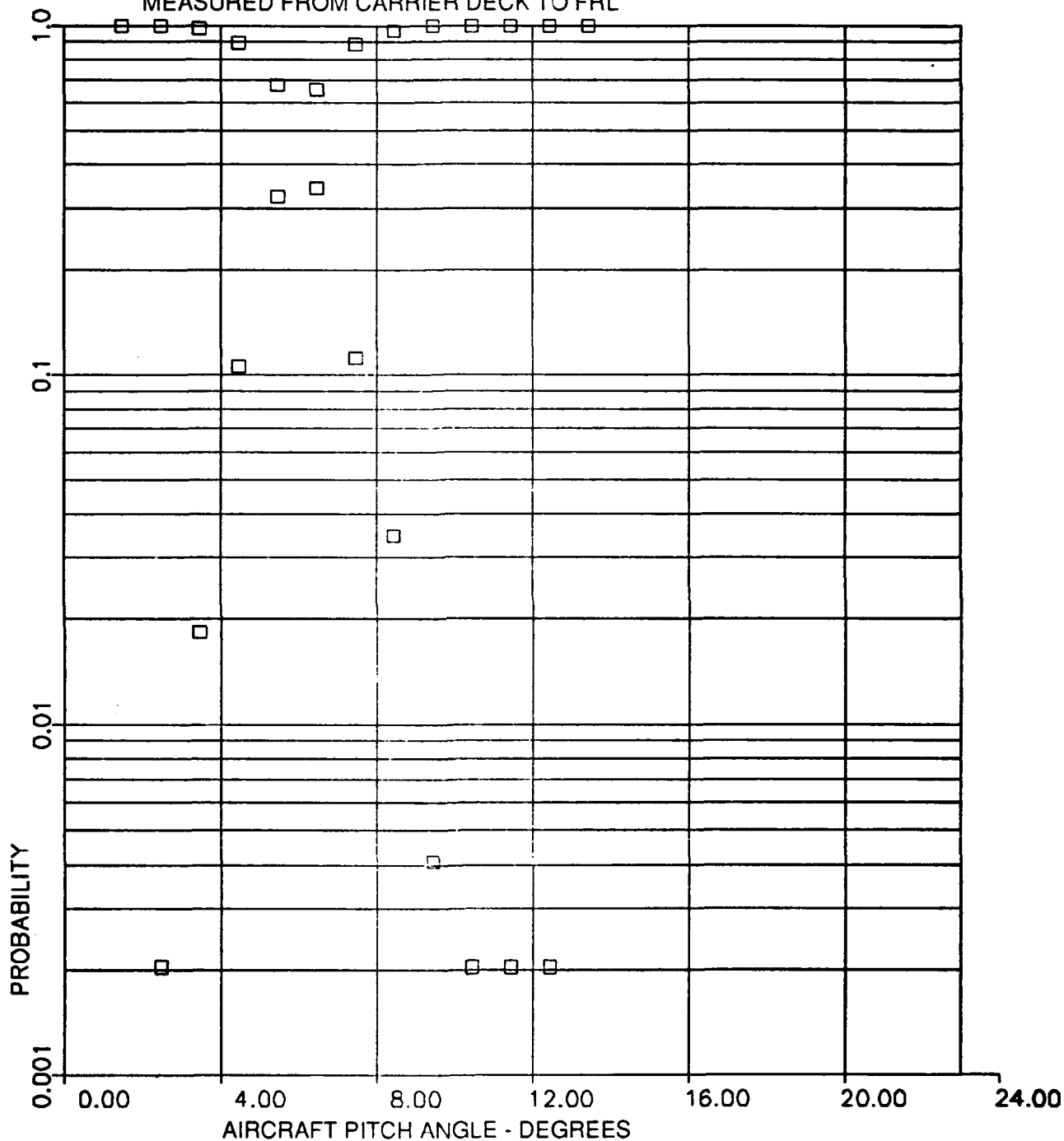
N= 490

 $\bar{X}$ = 5.99 DEGREES

S= 1.29 DEGREES

A3= 0.36

A4= 4.15

CURVE FITTED - PEARSON TYPE III  
POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRLFIGURE Q-22 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

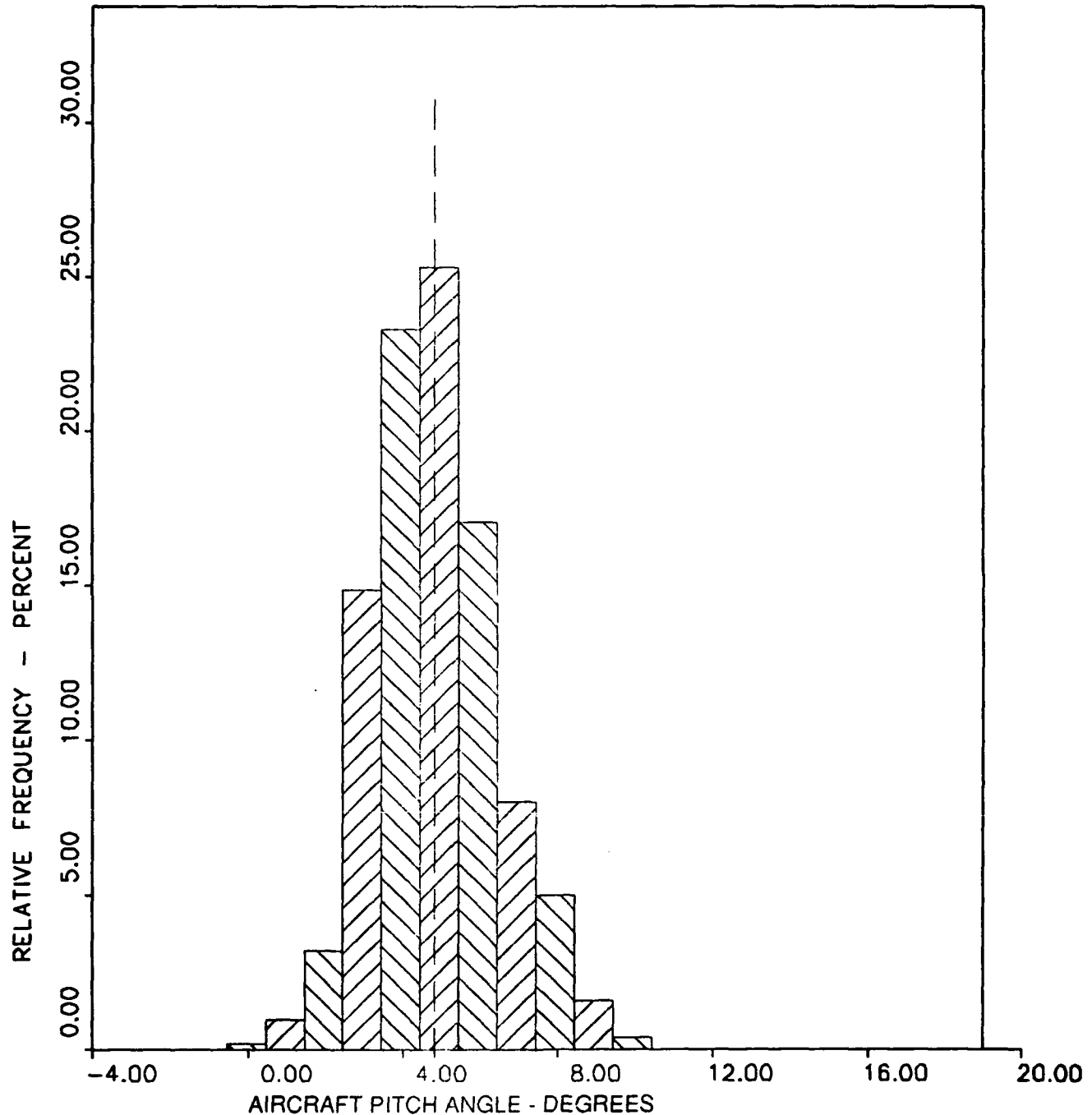
N= 498

 $\bar{X}$ = 4.82 DEGREES

S= 1.57 DEGREES

A3= 0.37

A4= 3.22

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRLFIGURE Q-23 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 4.82 DEGREES

S= 1.57 DEGREES

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE NOSE UP ATTITUDE

MEASURED FROM CARRIER DECK TO FRL

A3= 0.37

A4= 3.22

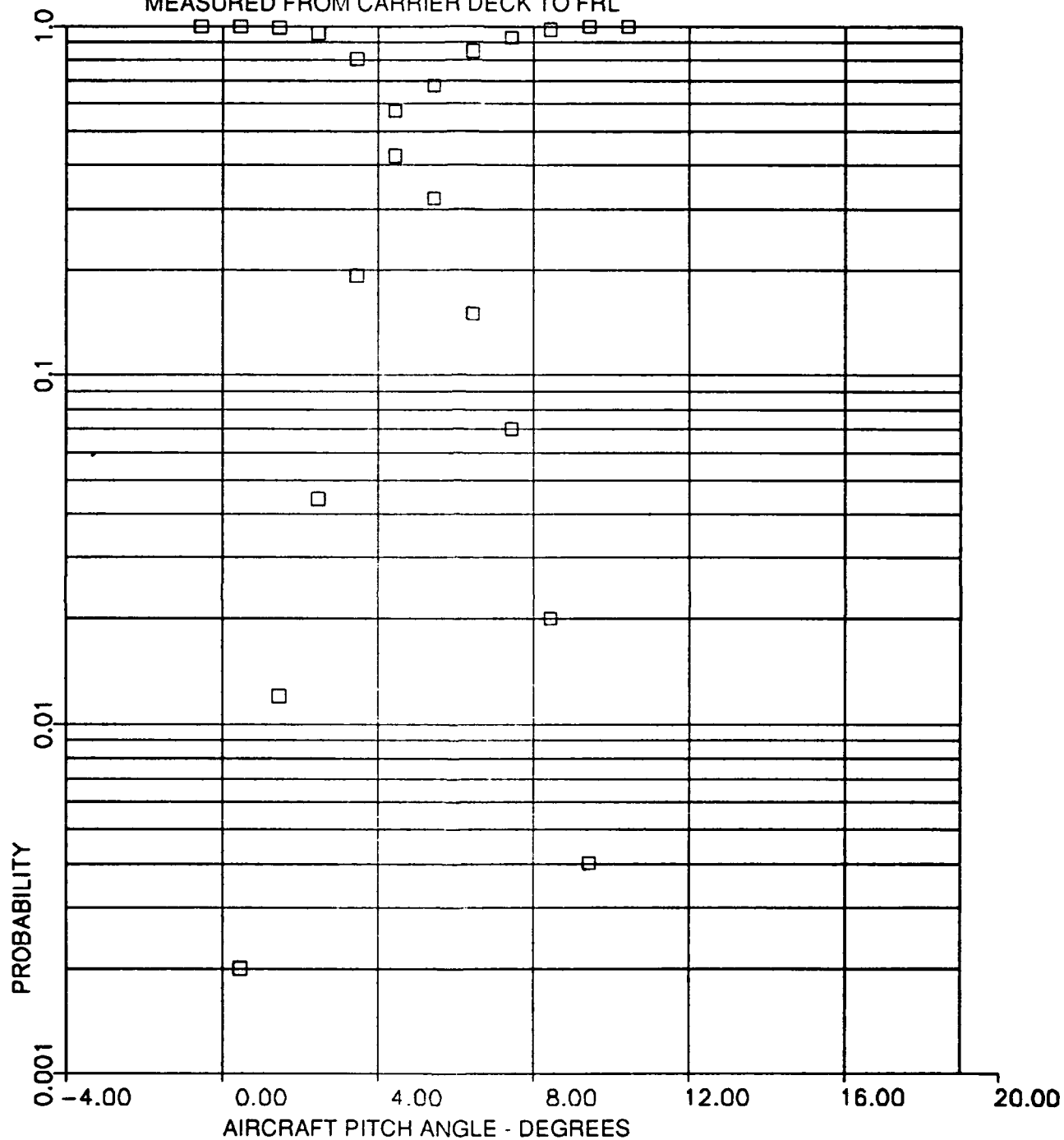


FIGURE Q-24 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

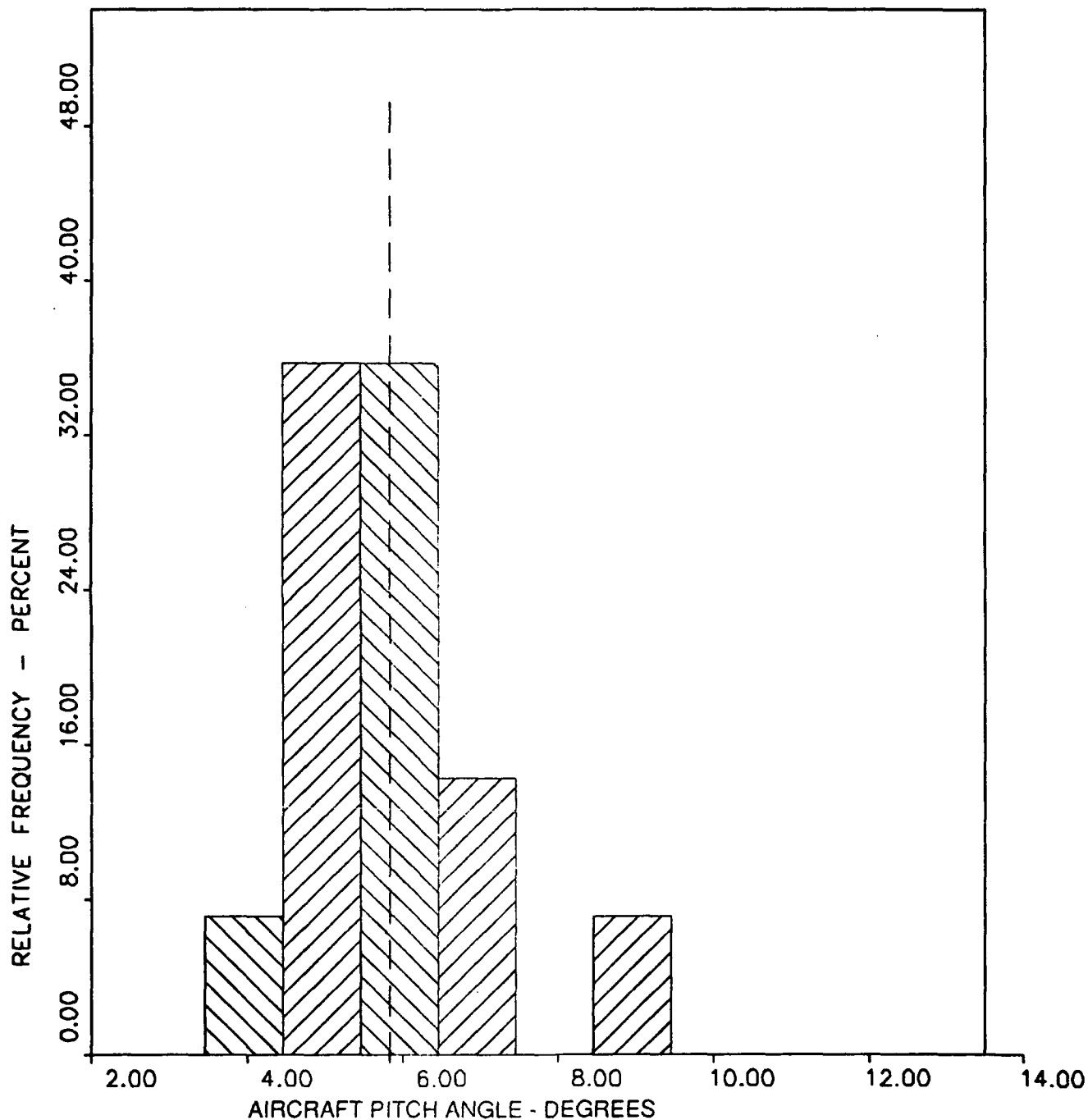
N= 28

 $\bar{X}$ = 5.82 DEGREES

S= 1.22 DEGREES

A3= 0.84

A4= 3.76

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRLFIGURE Q-25 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 28

 $\bar{X}$ = 5.82 DEGREES

S= 1.22 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

A3= 0.84

A4= 3.76

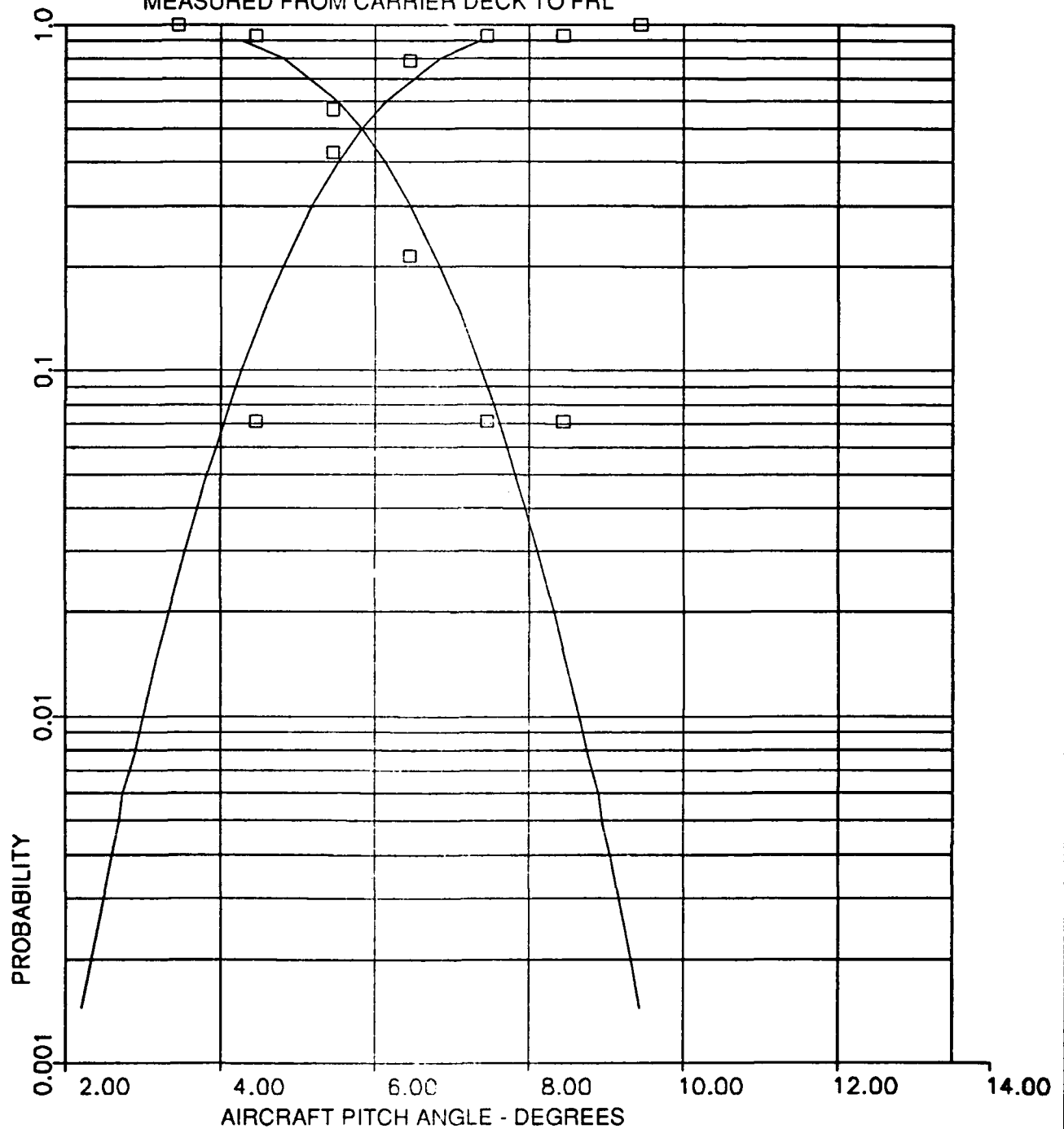


FIGURE Q-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

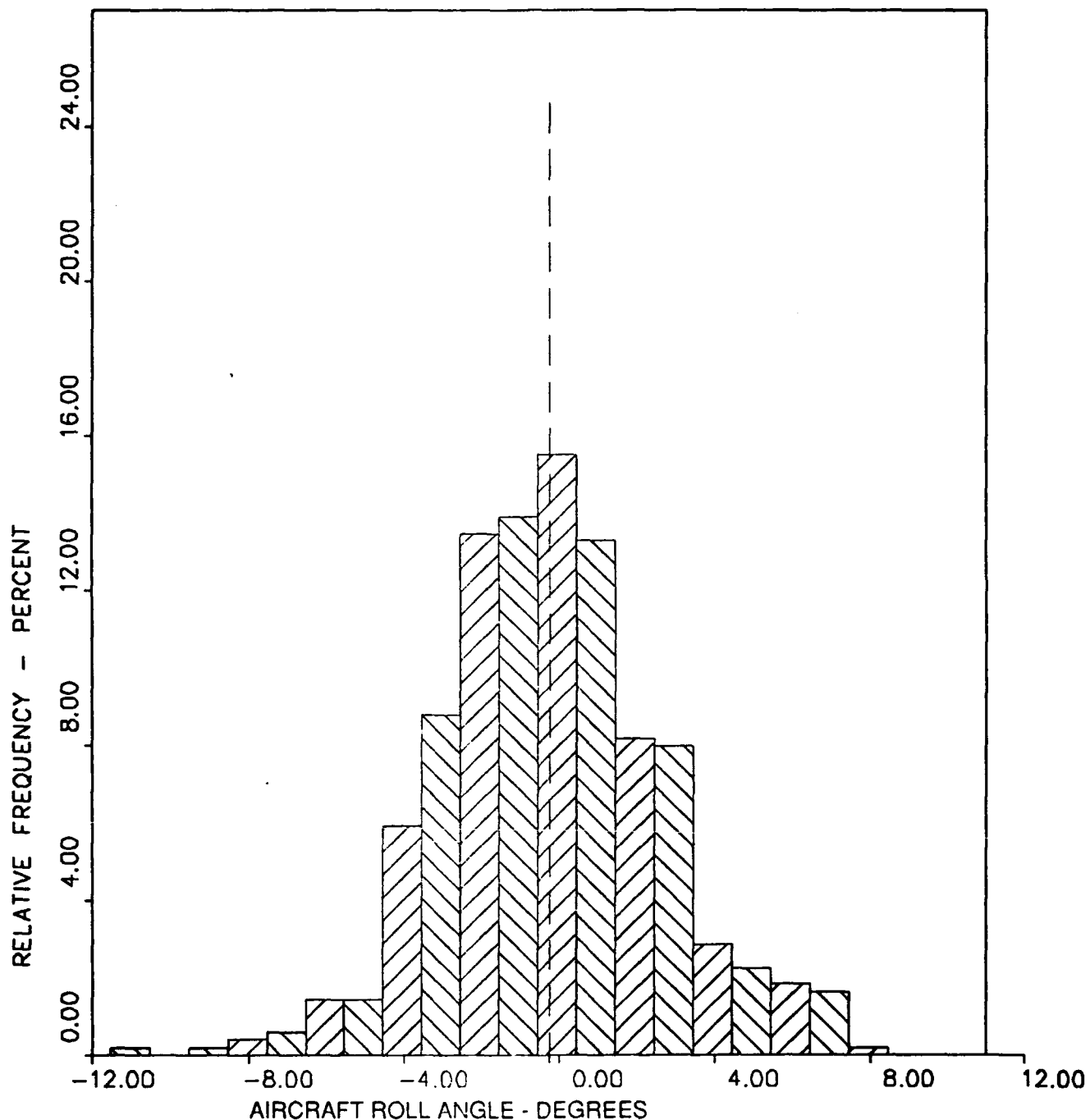
N= 490  $\bar{X}$ =-0.24 DEGREES

S= 2.81 DEGREES

A3= 0.09

A4= 3.57

POSITIVE VALUES INDICATE STARBOARD WING DOWN

FIGURE Q-27 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL T-2C

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 490

 $\bar{X} = -0.24$  DEGREES

S= 2.81 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

A3= 0.09

A4= 3.57

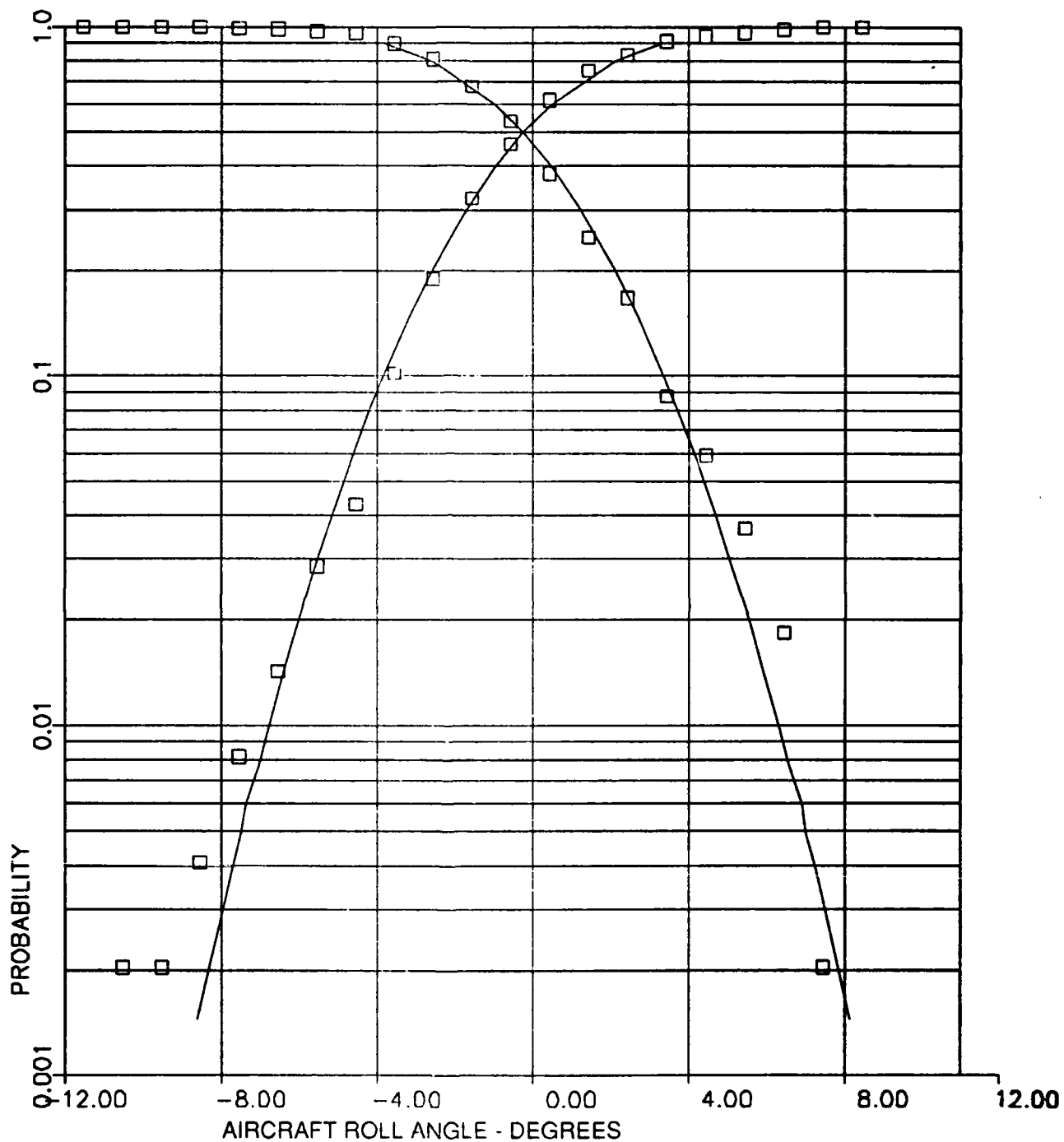


FIGURE Q-28 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP



MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

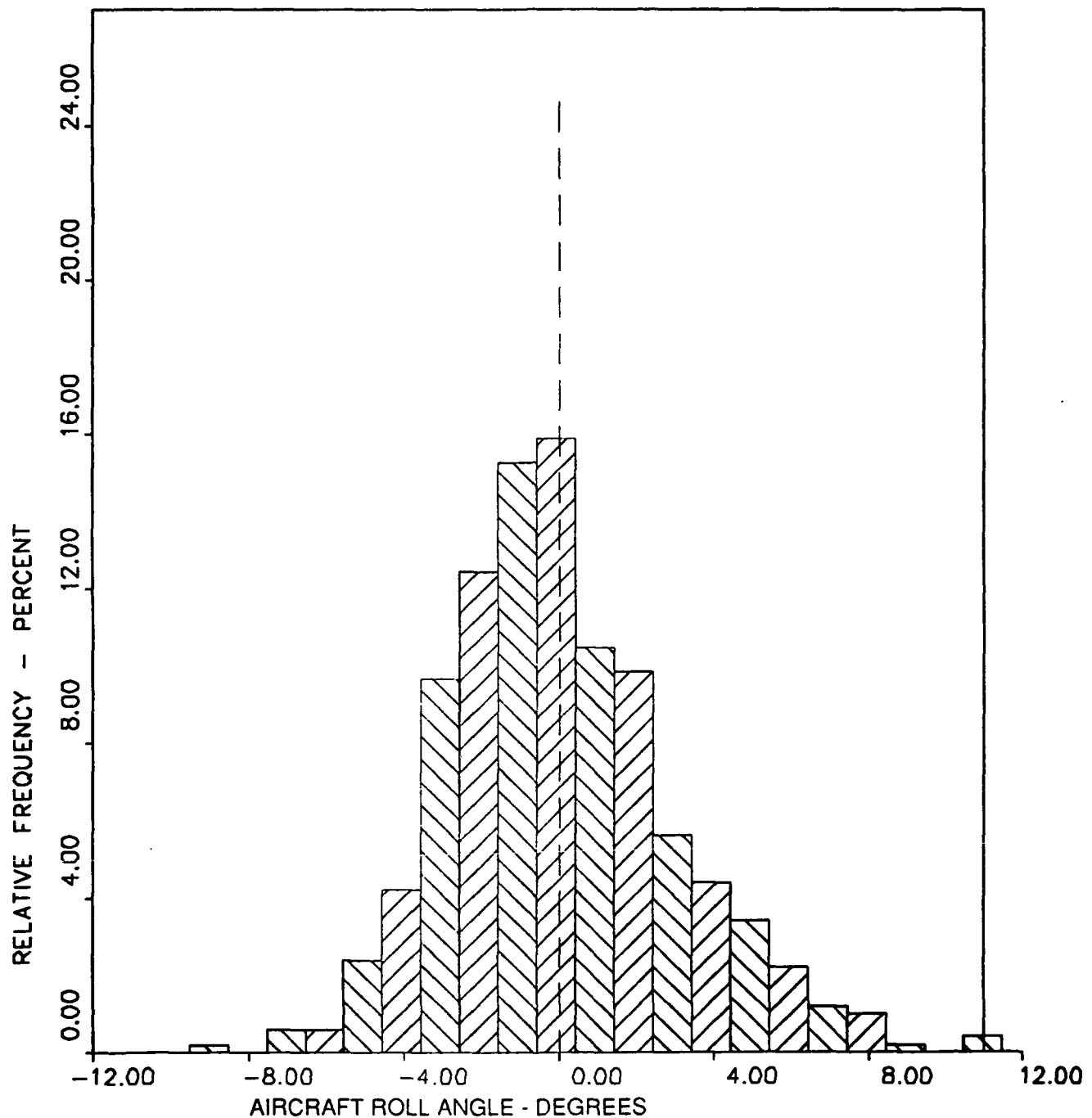
N= 498  $\bar{X}$ = 0.05 DEGREES

S= 2.93 DEGREES

A3= 0.57

A4= 3.62

POSITIVE VALUES INDICATE STARBOARD WING DOWN

FIGURE Q-29 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 0.05 DEGREES

S= 2.93 DEGREES

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

A3= 0.57

A4= 3.62

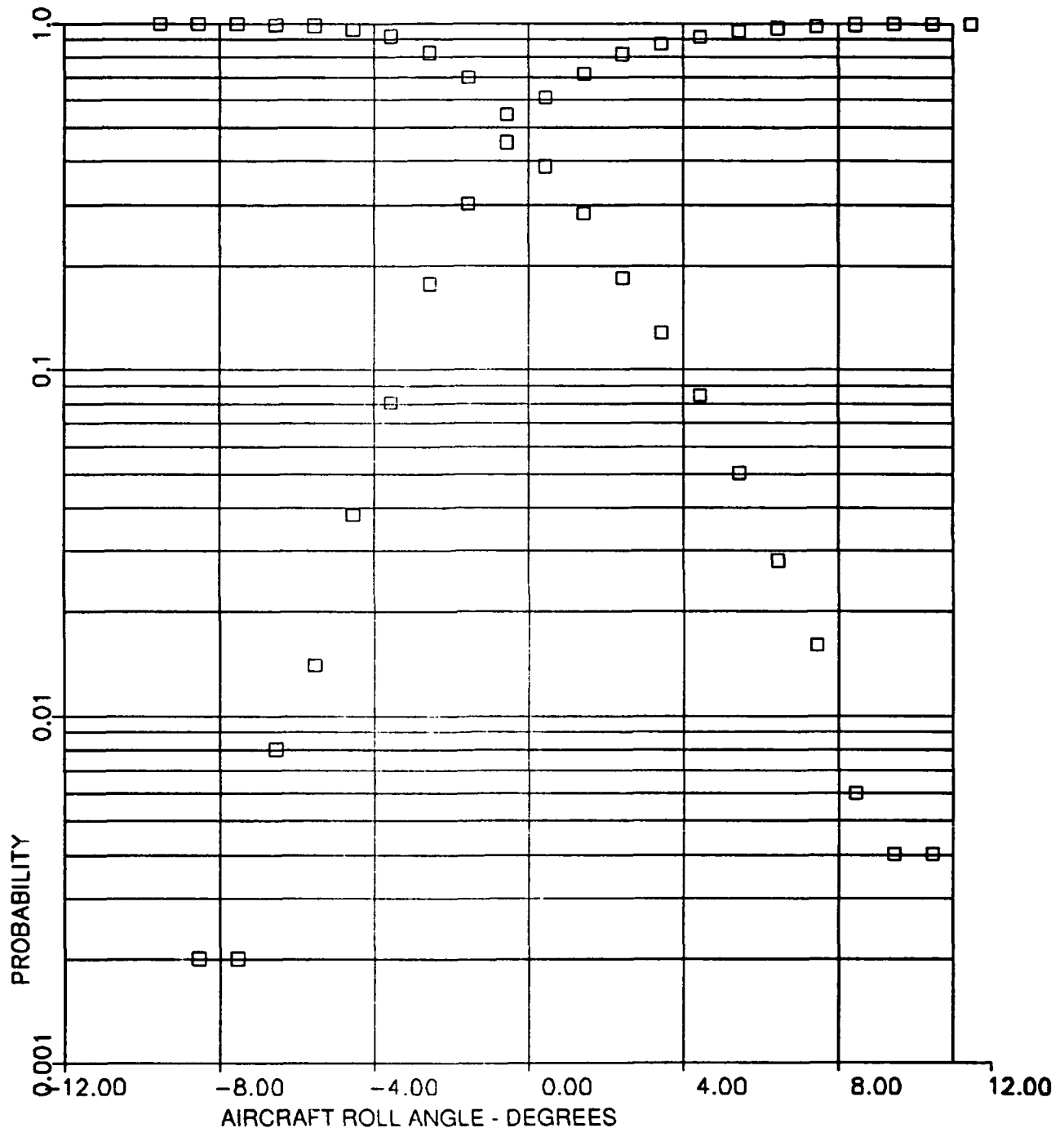


FIGURE Q-30 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 28

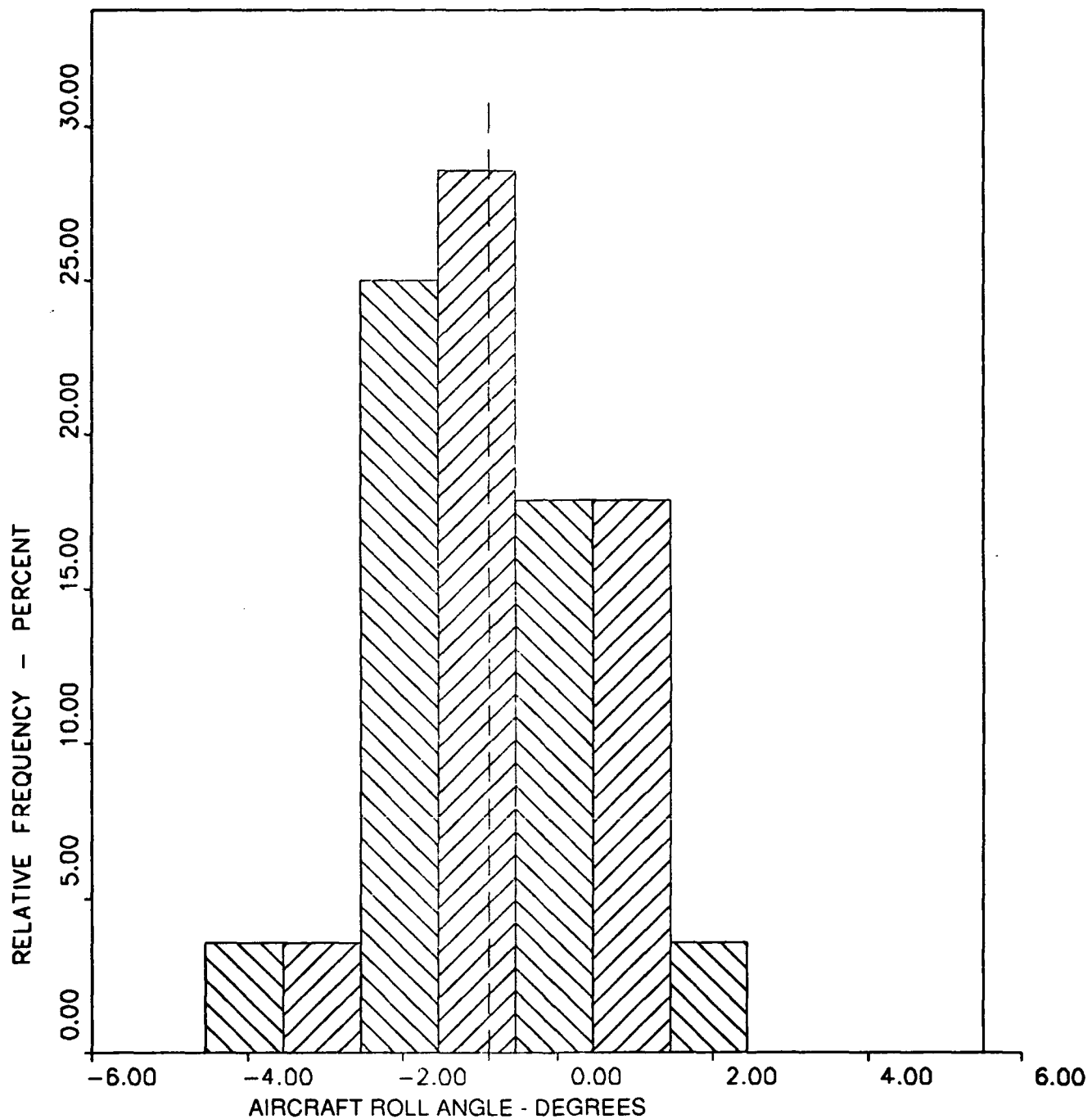
 $\bar{X}$  = -0.90 DEGREES

S = 1.36 DEGREES

A3 = -0.07

A4 = 2.54

POSITIVE VALUES INDICATE STARBOARD WING DOWN

FIGURE Q-31 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 28

 $\bar{X} = -0.90$  DEGREES

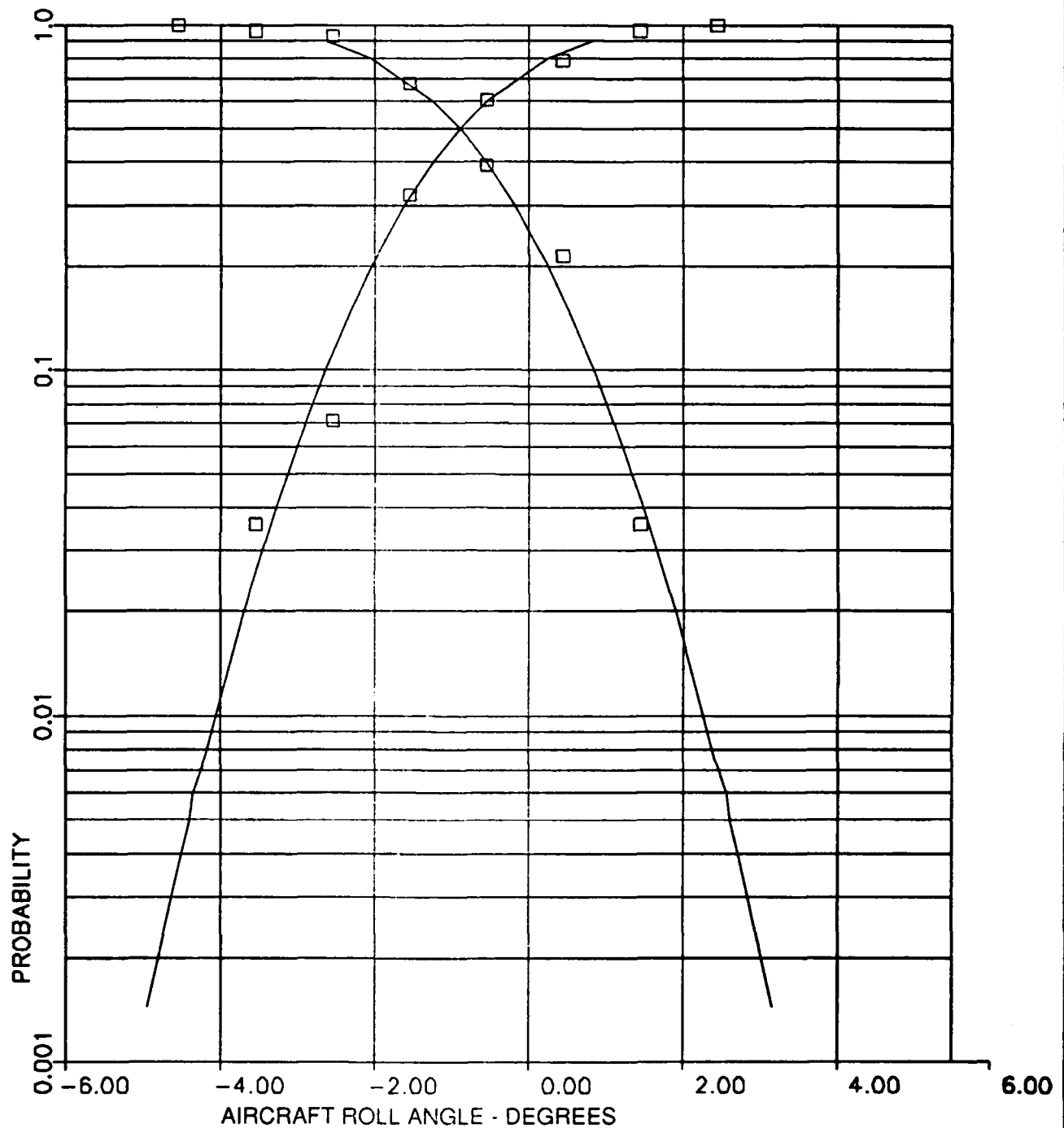
S= 1.36 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

A3=-0.07

A4= 2.54

FIGURE Q-32 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 248.42 FEET

S= 44.53 FEET

A3=-0.33

A4= 2.66

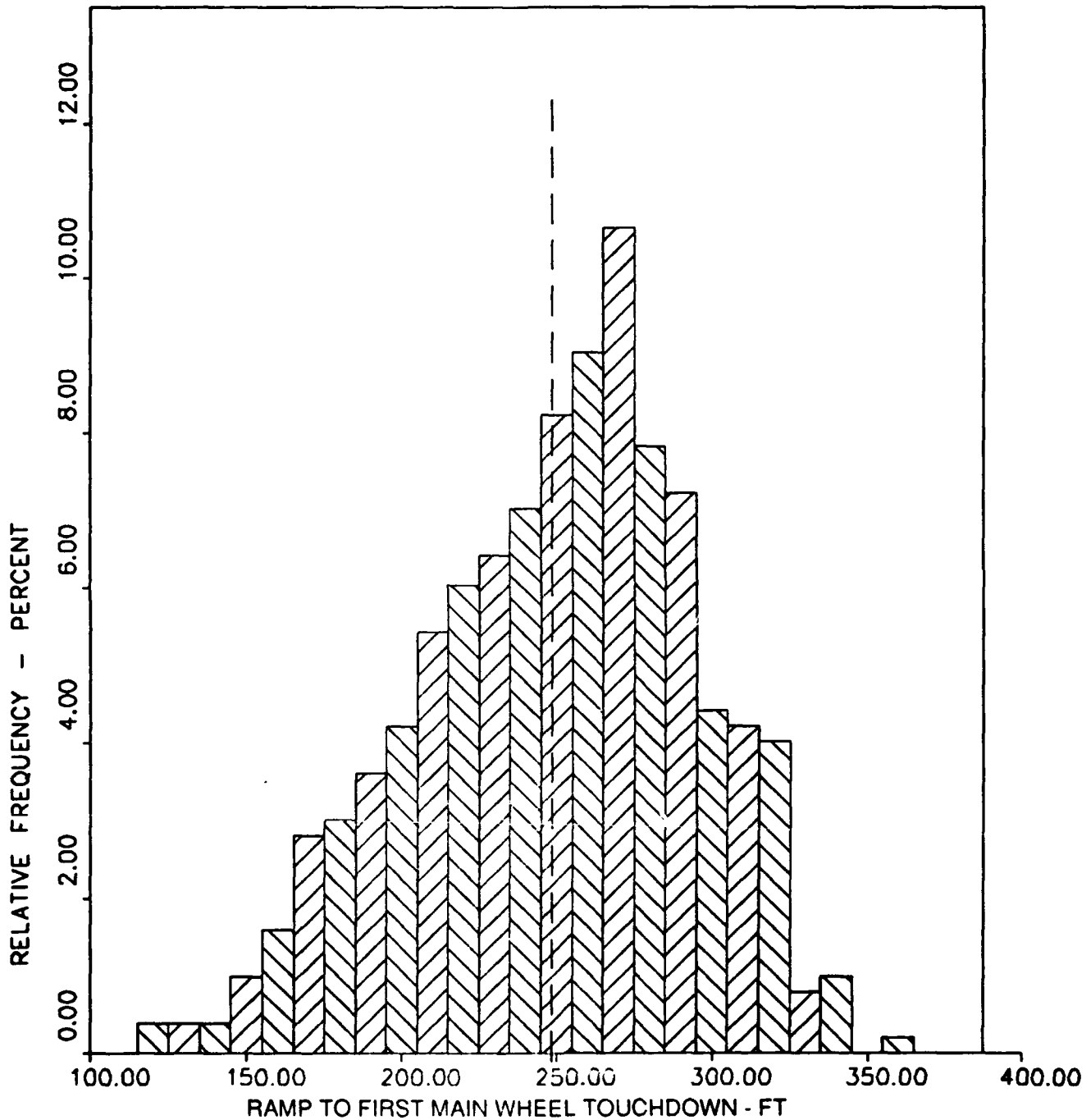


FIGURE Q-33 FREQUENCY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 248.42 FEET

S= 44.53 FEET

CURVE FITTED - PEARSON TYPE III

A3=-0.33

A4= 2.66

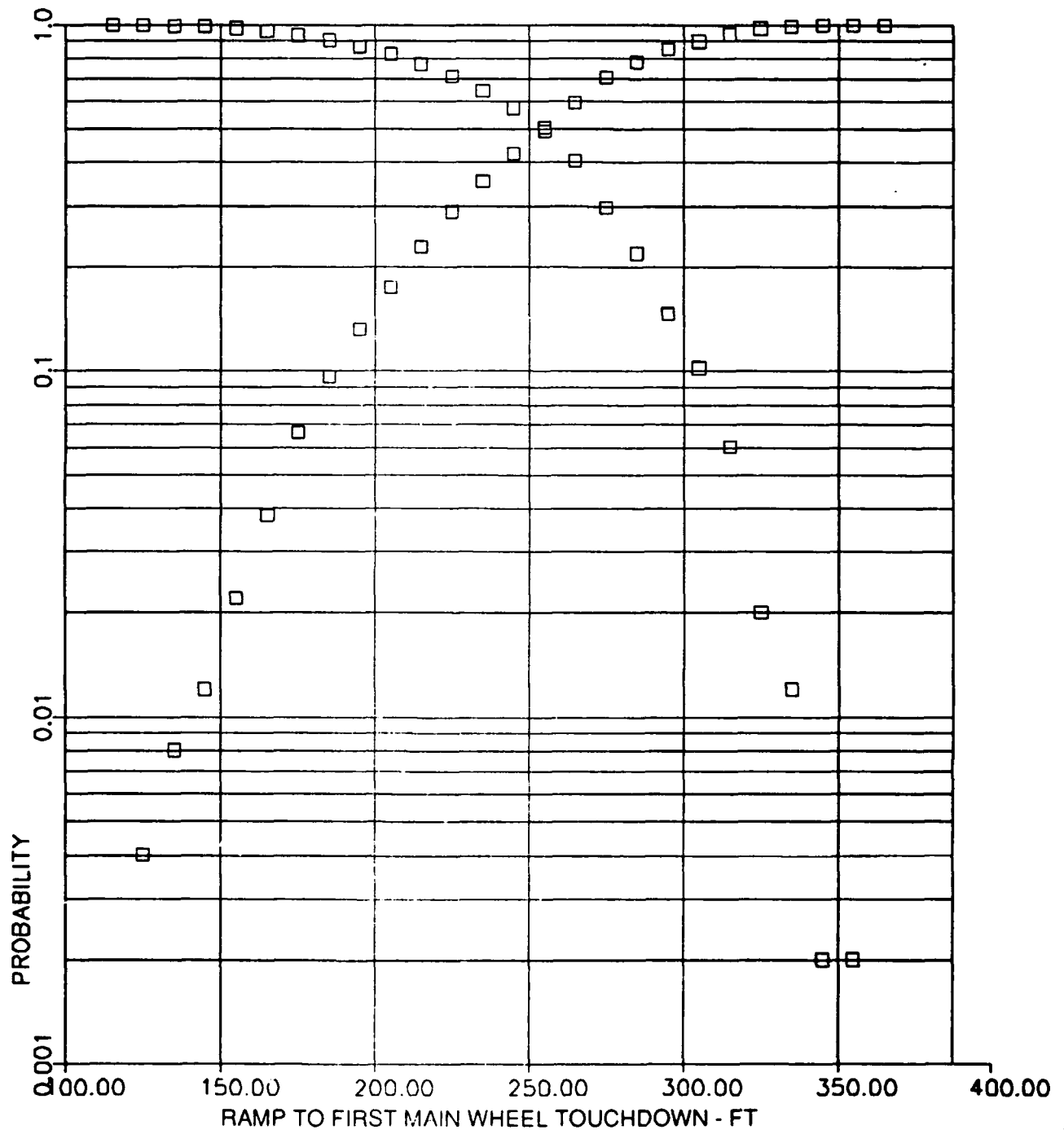


FIGURE Q-34 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = -11.09 FEET

S= 5.23 FEET

A3=-0.01

A4= 4.12

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

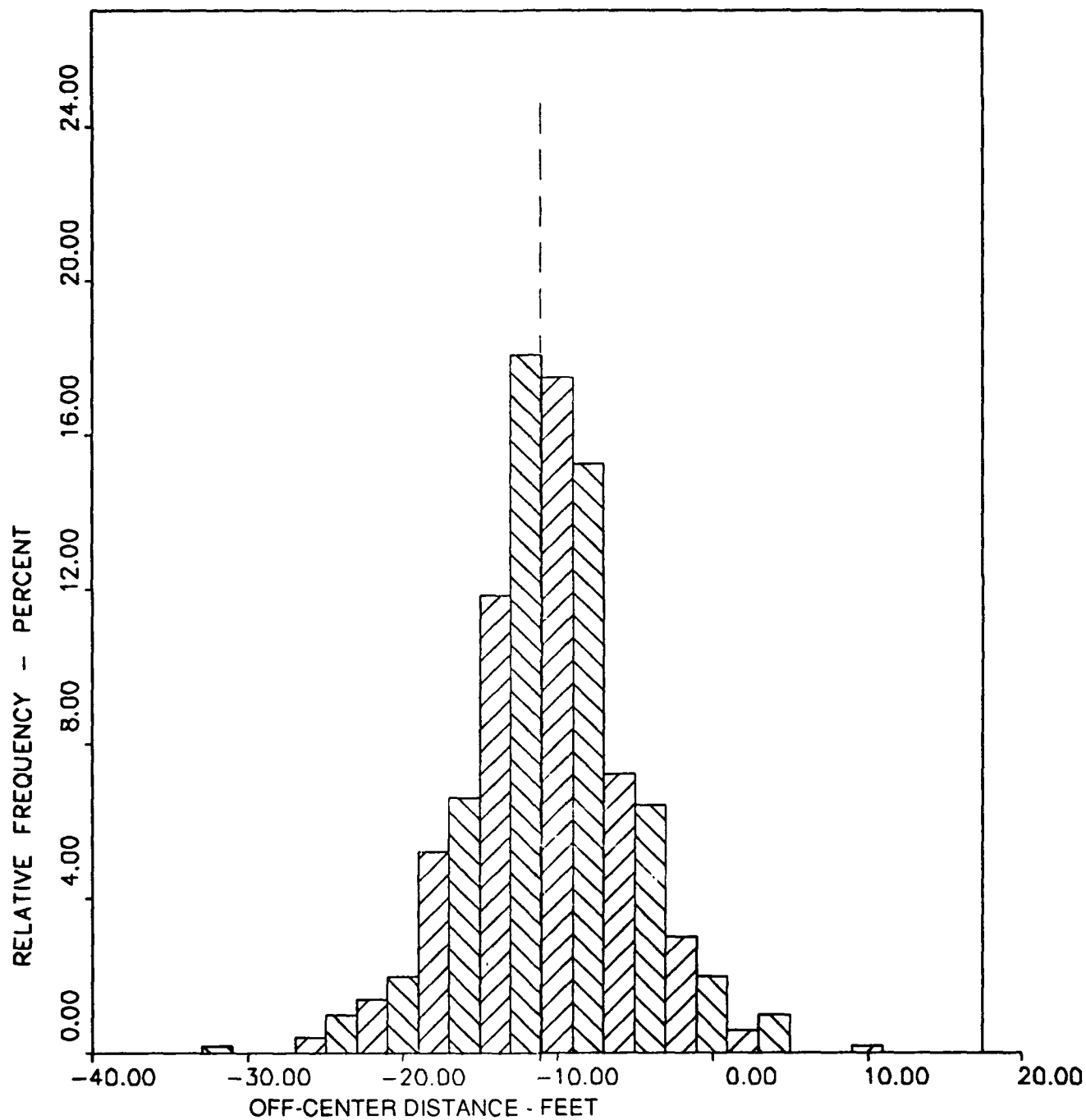


FIGURE Q-35 FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = -11.09 FEET

S= 5.23 FEET

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

A3=-0.01

A4= 4.12

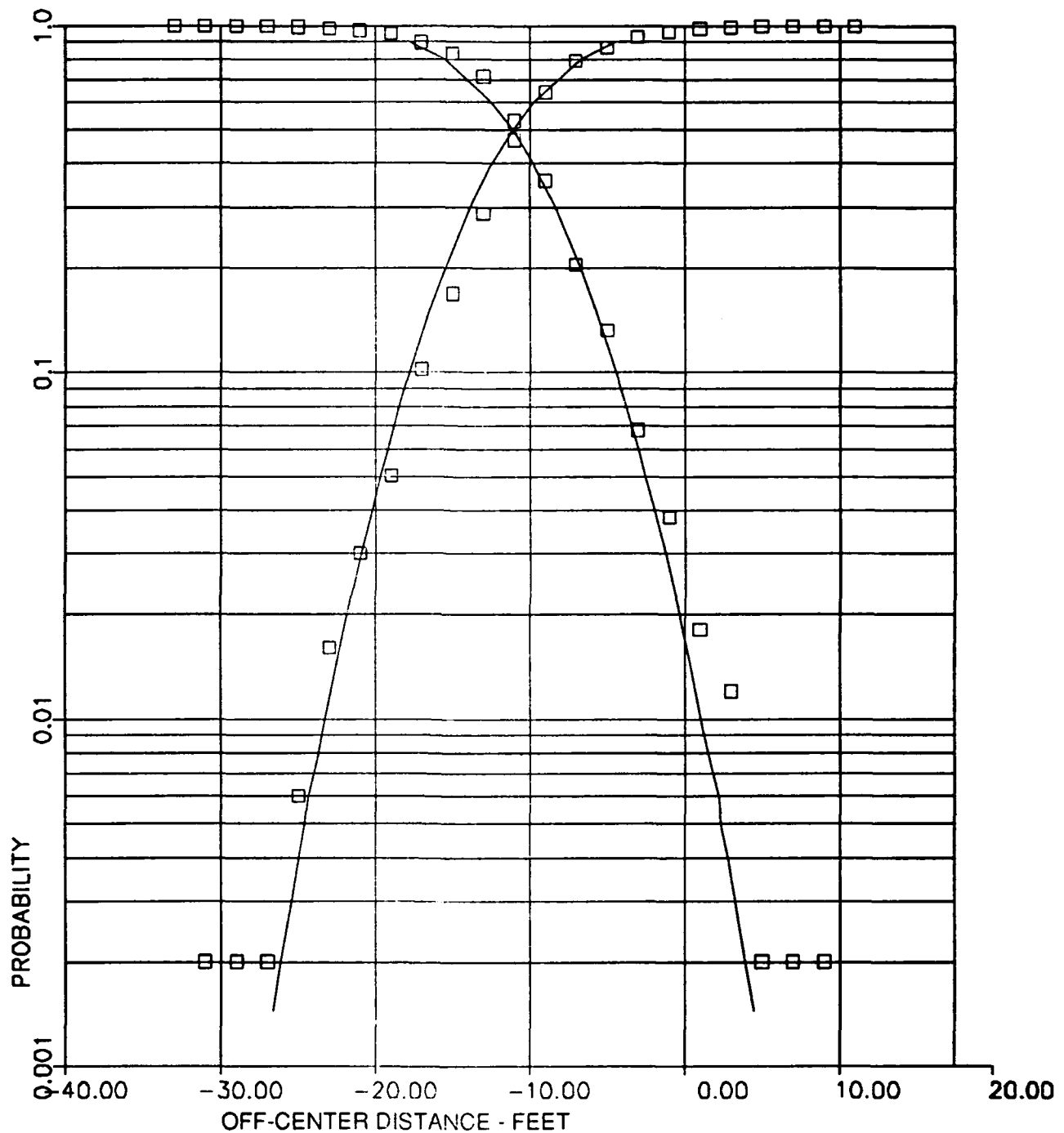


FIGURE Q-36 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN



MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING=

3.50 DEGREES

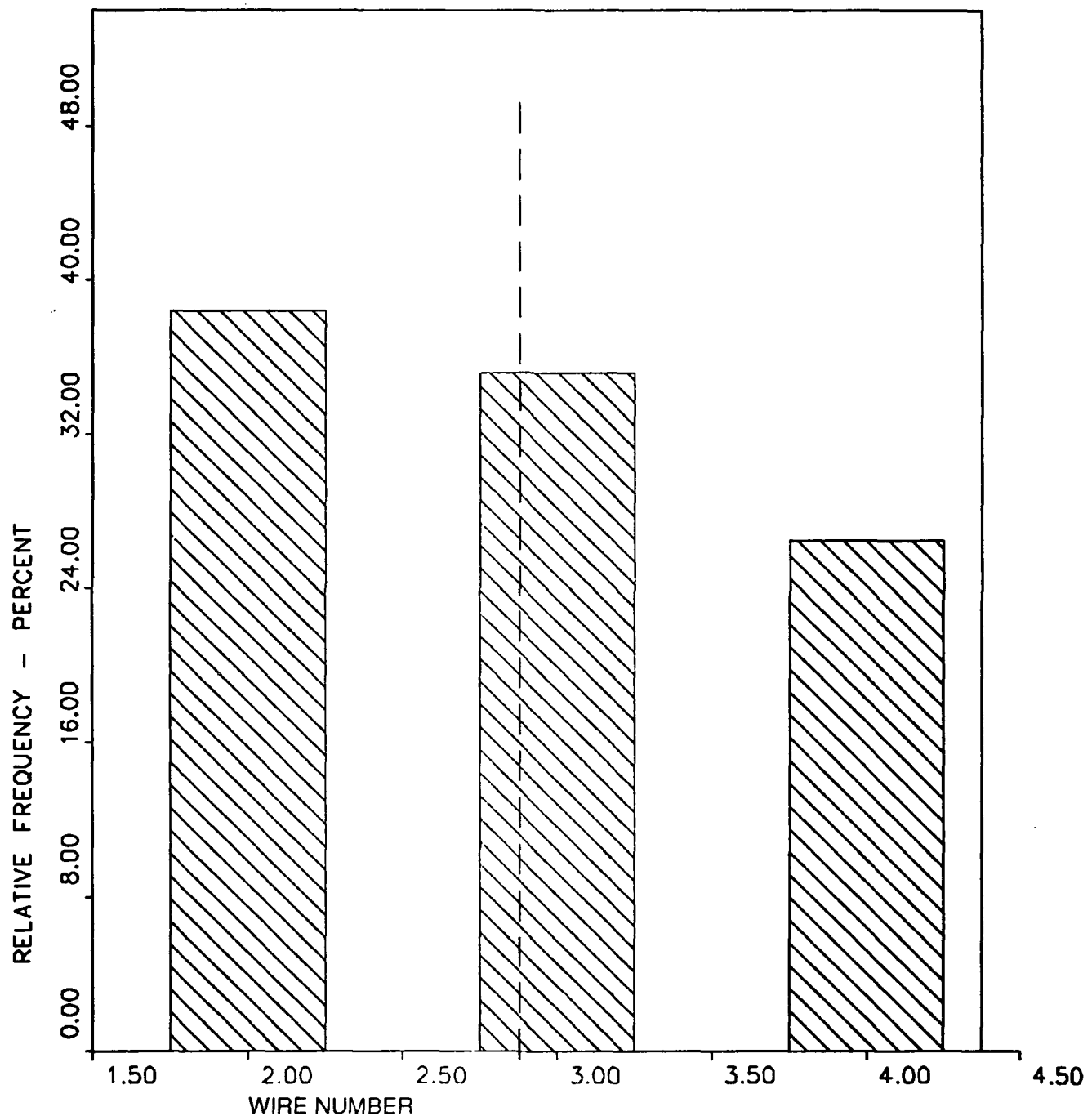
N= 310

 $\bar{X}$ = 2.88

S= 0.80

A3= 0.22

A4= 1.61

FIGURE Q-37 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 490

 $\bar{X}$ = 2.83 DEGREES

S= 0.66 DEGREES

A3= 0.97

A4= 5.59

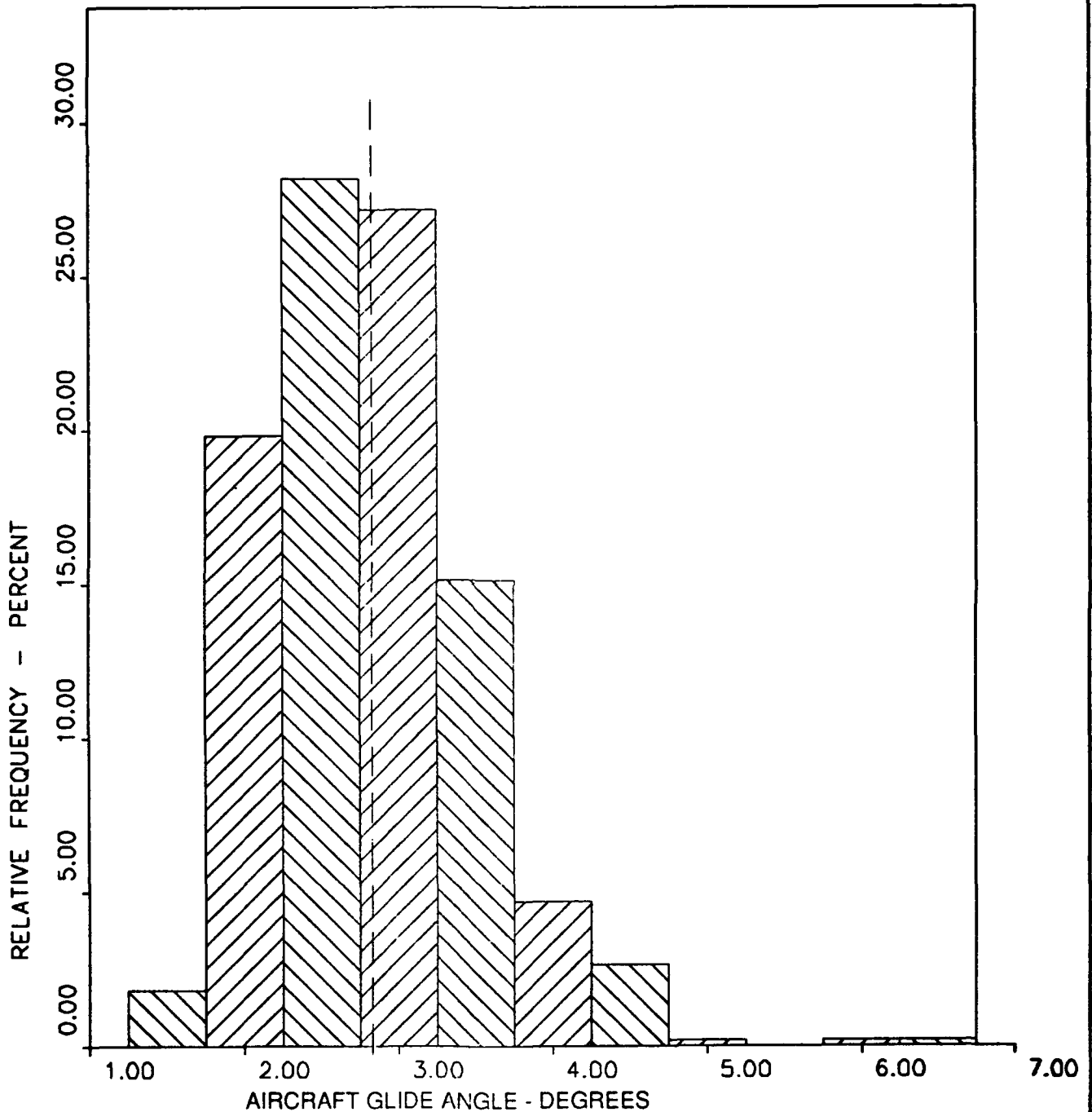


FIGURE Q-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 490

 $\bar{X}$ = 13.21 FEET

S= 3.08 FEET

A3= 0.14

A4= 2.92

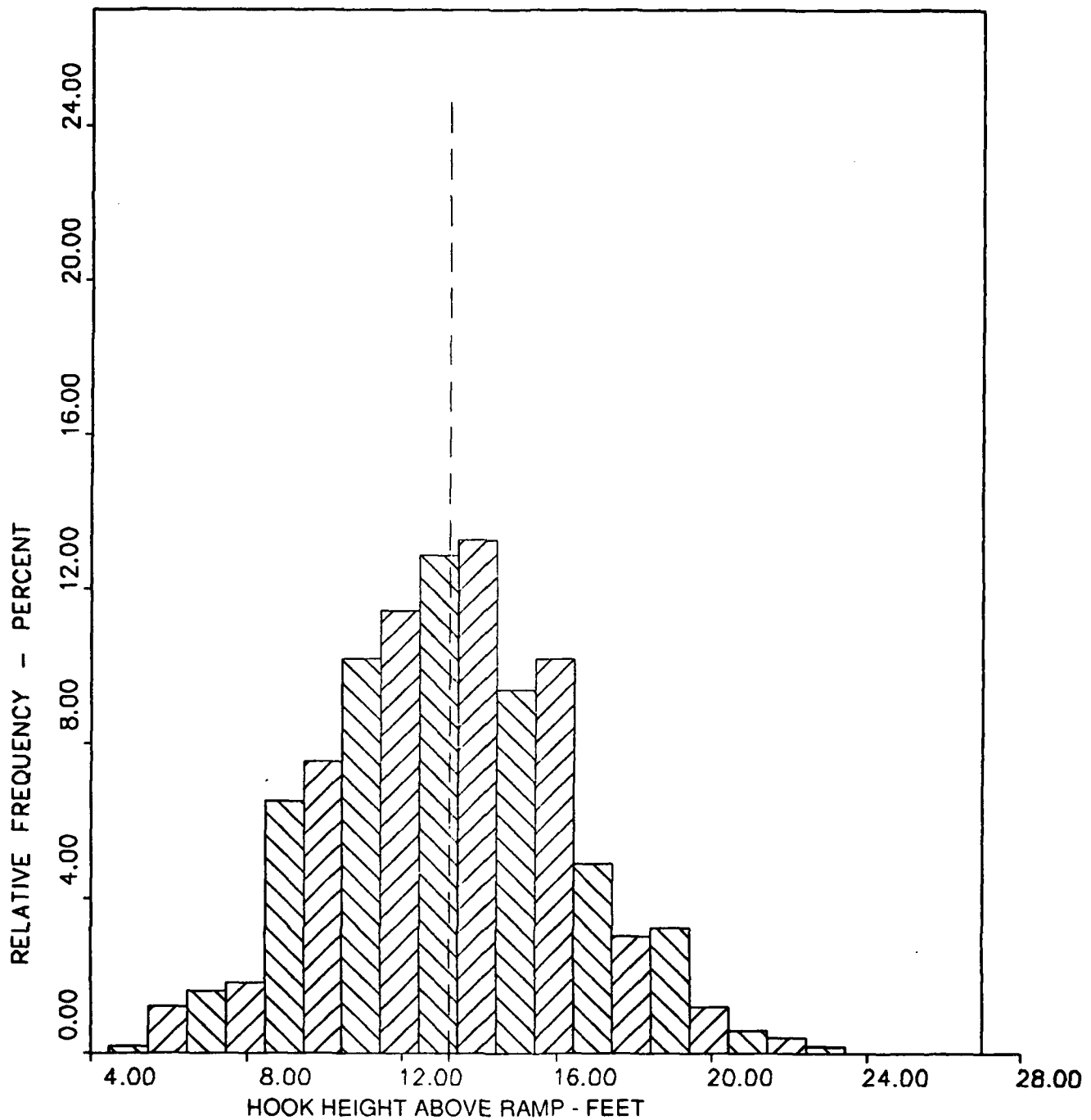


FIGURE Q-39 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 490

 $\bar{X}$ = 13.21 FEET

S= 3.08 FEET

CURVE FITTED - NORMAL

A3= 0.14

A4= 2.92

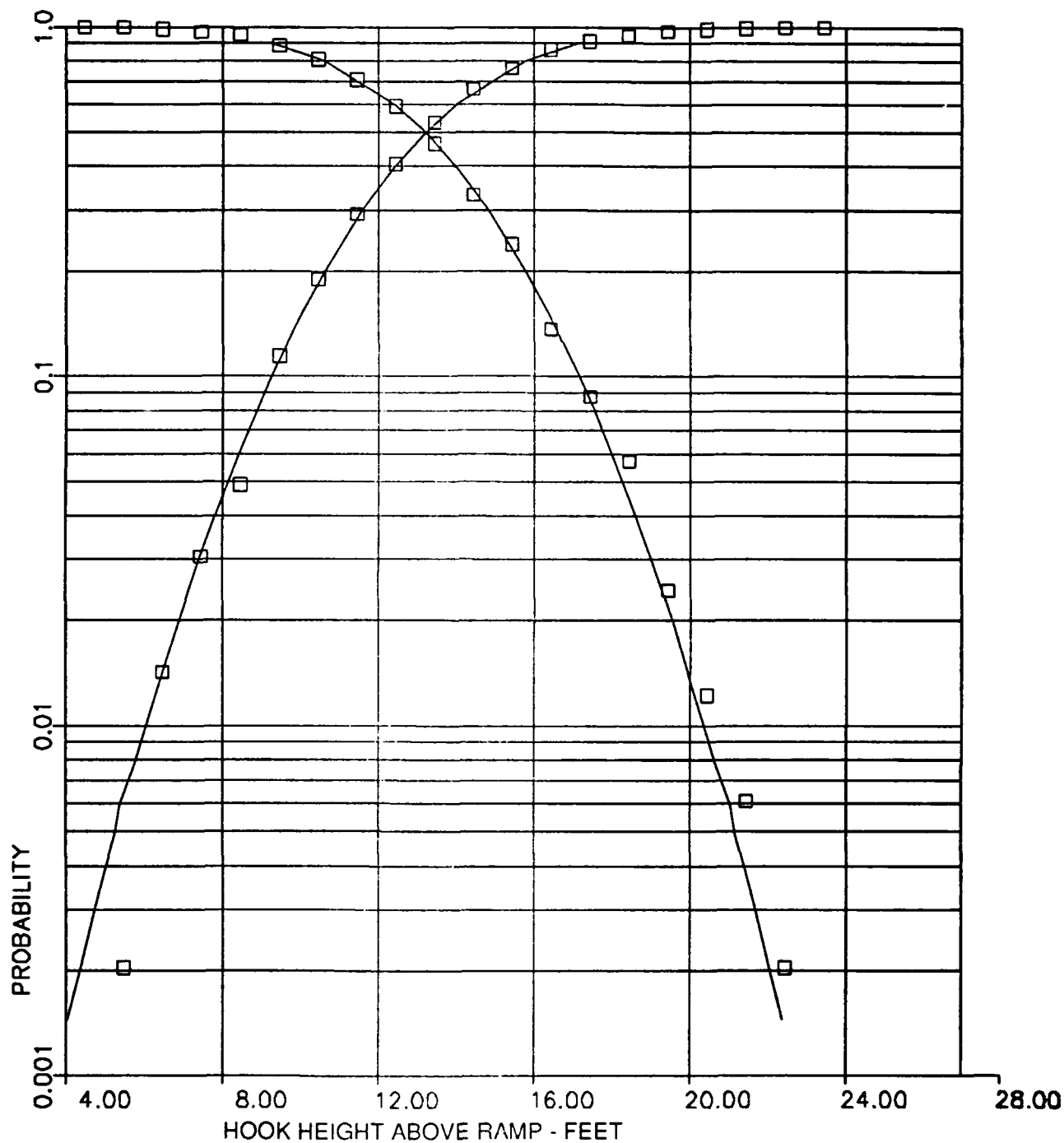


FIGURE Q-40 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 82.35 KNOTS

S= 5.42 KNOTS

A3= 0.32

A4= 4.33

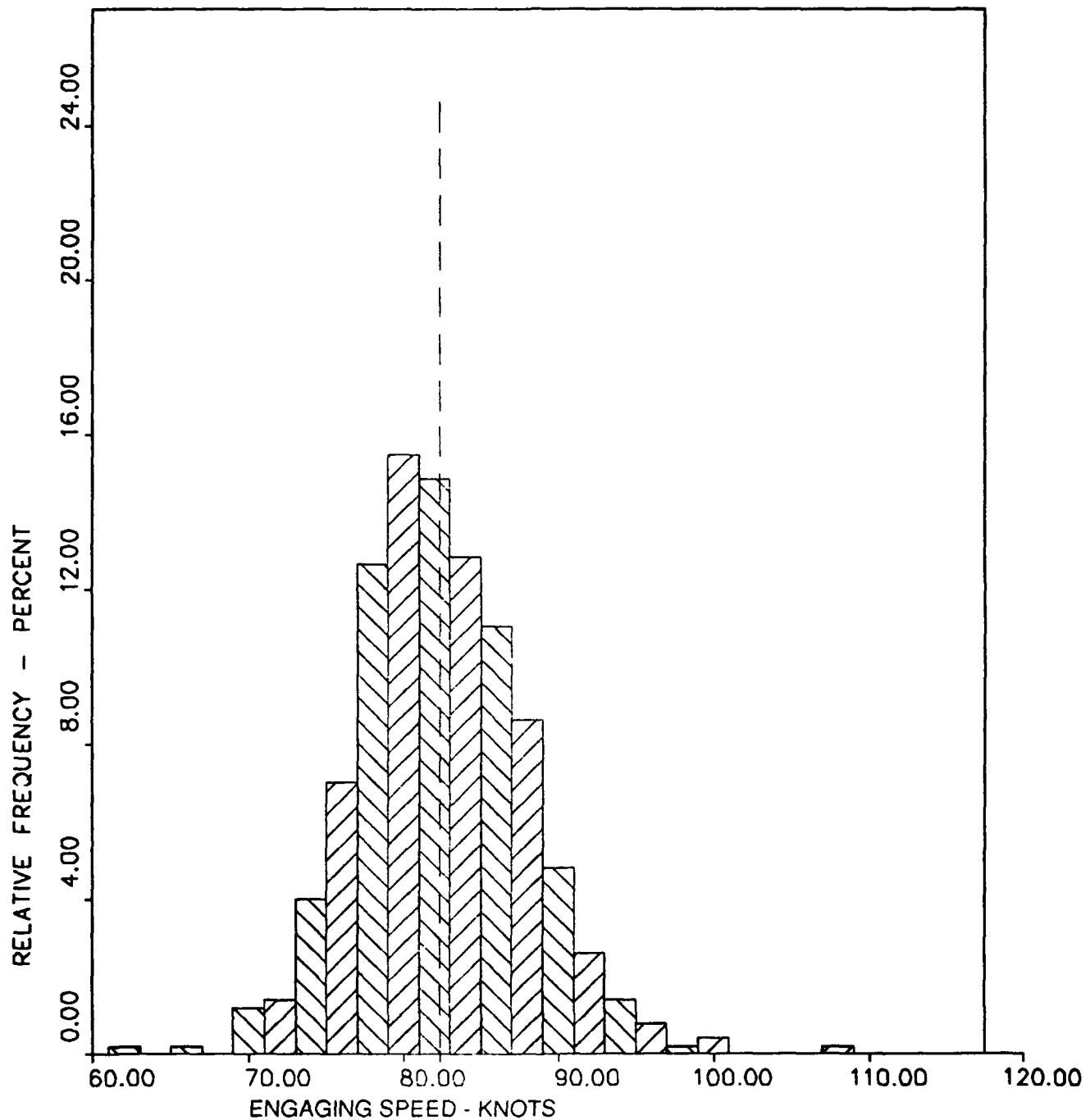


FIGURE Q-41 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

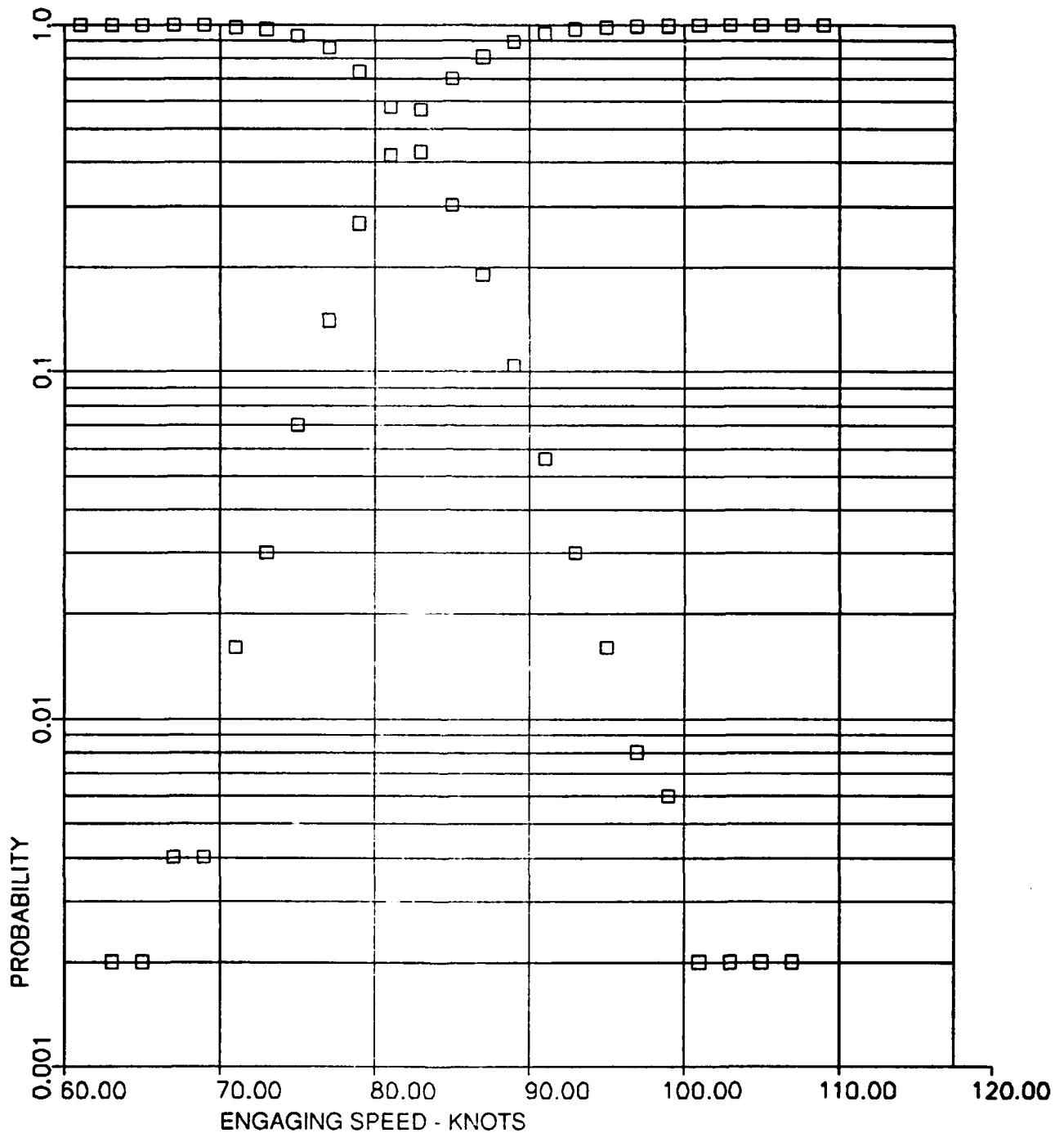
 $\bar{X}$ = 82.35 KNOTS

S= 5.42 KNOTS

CURVE FITTED - PEARSON TYPE III

A3= 0.32

A4= 4.33

FIGURE Q-42 PROBABILITY DISTRIBUTION OF ENGAGING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

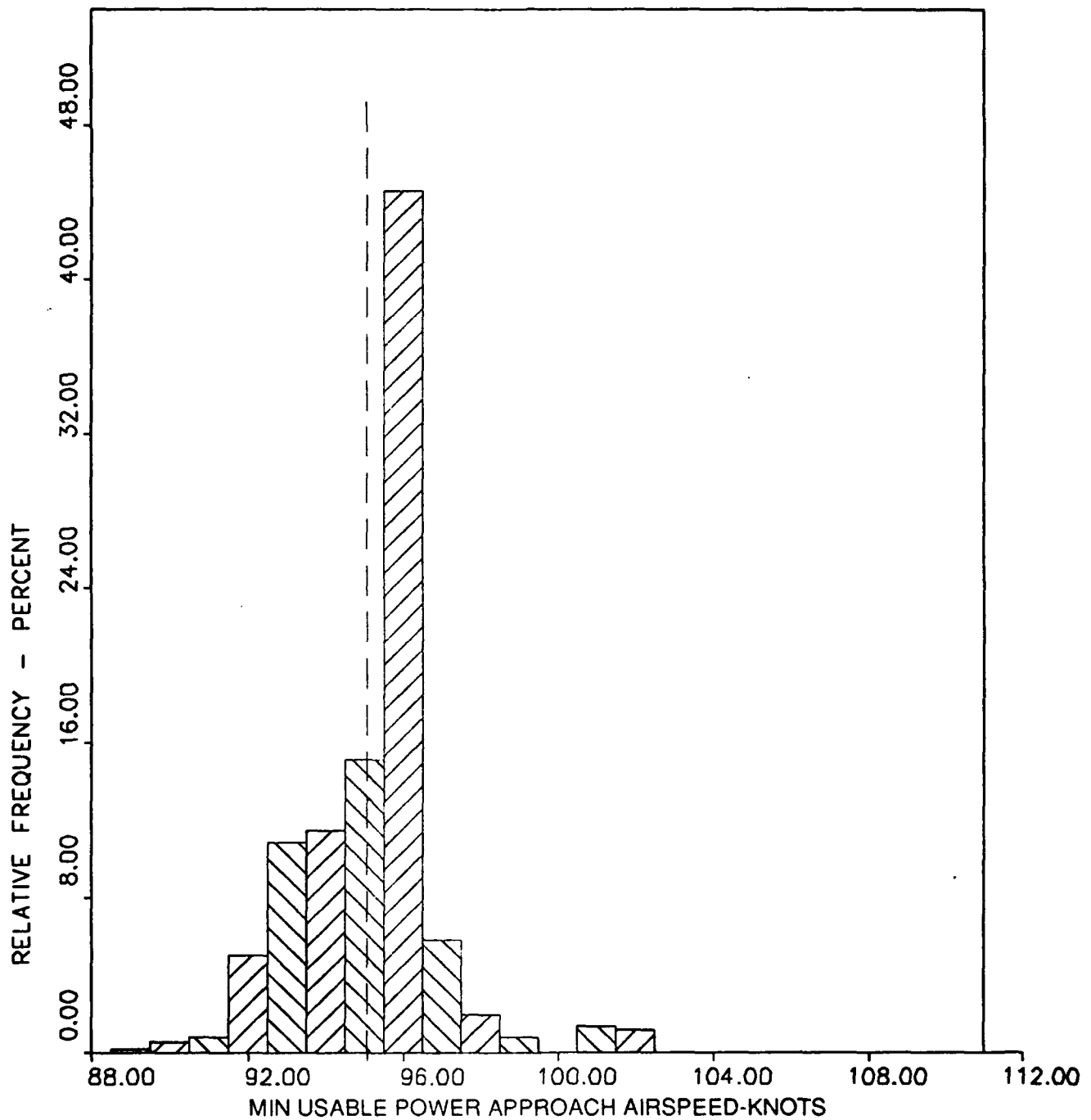
N= 496

 $\bar{X}$ = 95.07 KNOTS

S= 1.84 KNOTS

A3= 0.73

A4= 6.29

FIGURE Q-43 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

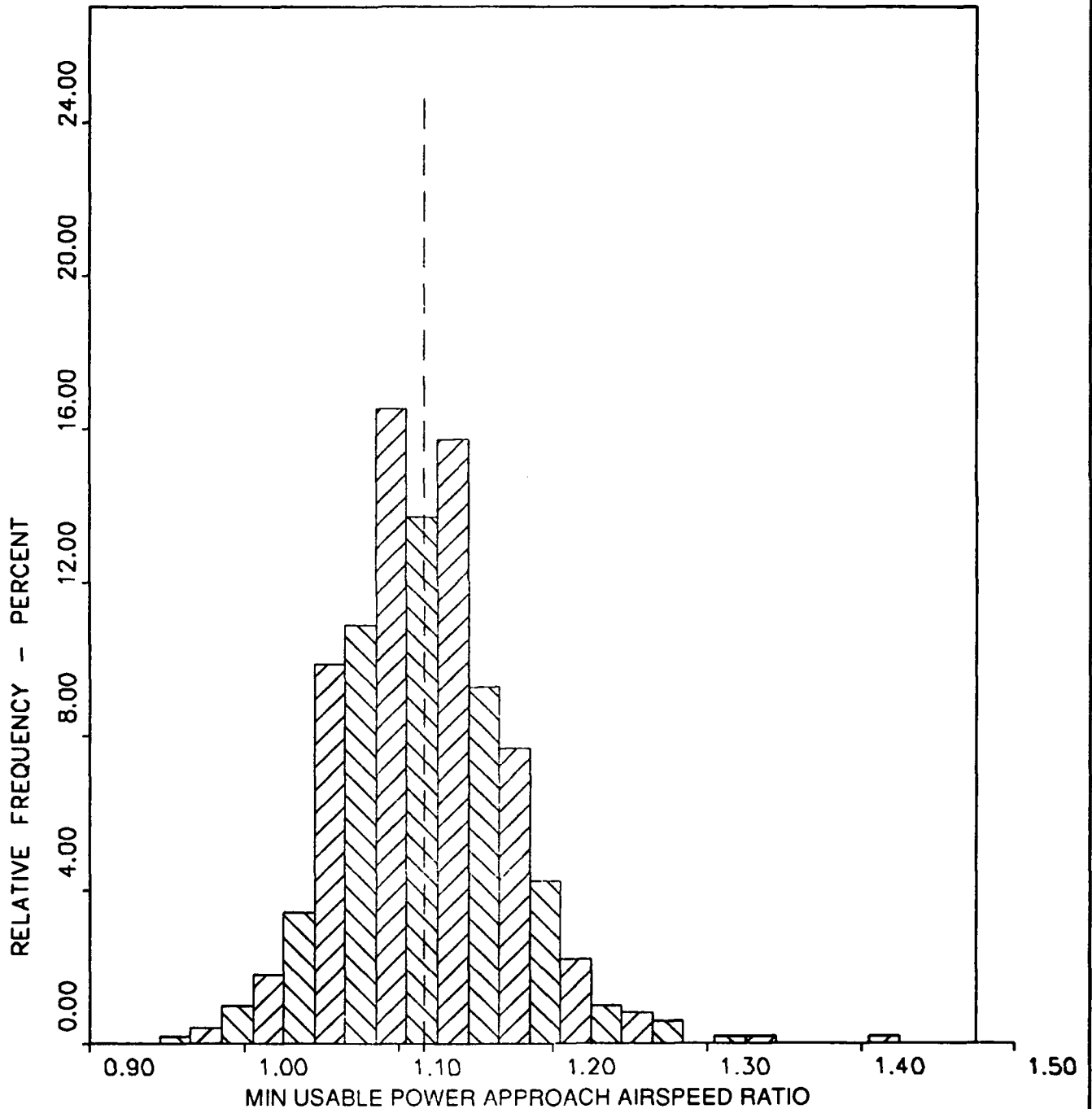
N= 496

 $\bar{X}$ = 1.12

S= 0.06

A3= 0.59

A4= 4.97

FIGURE Q-44 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM



MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

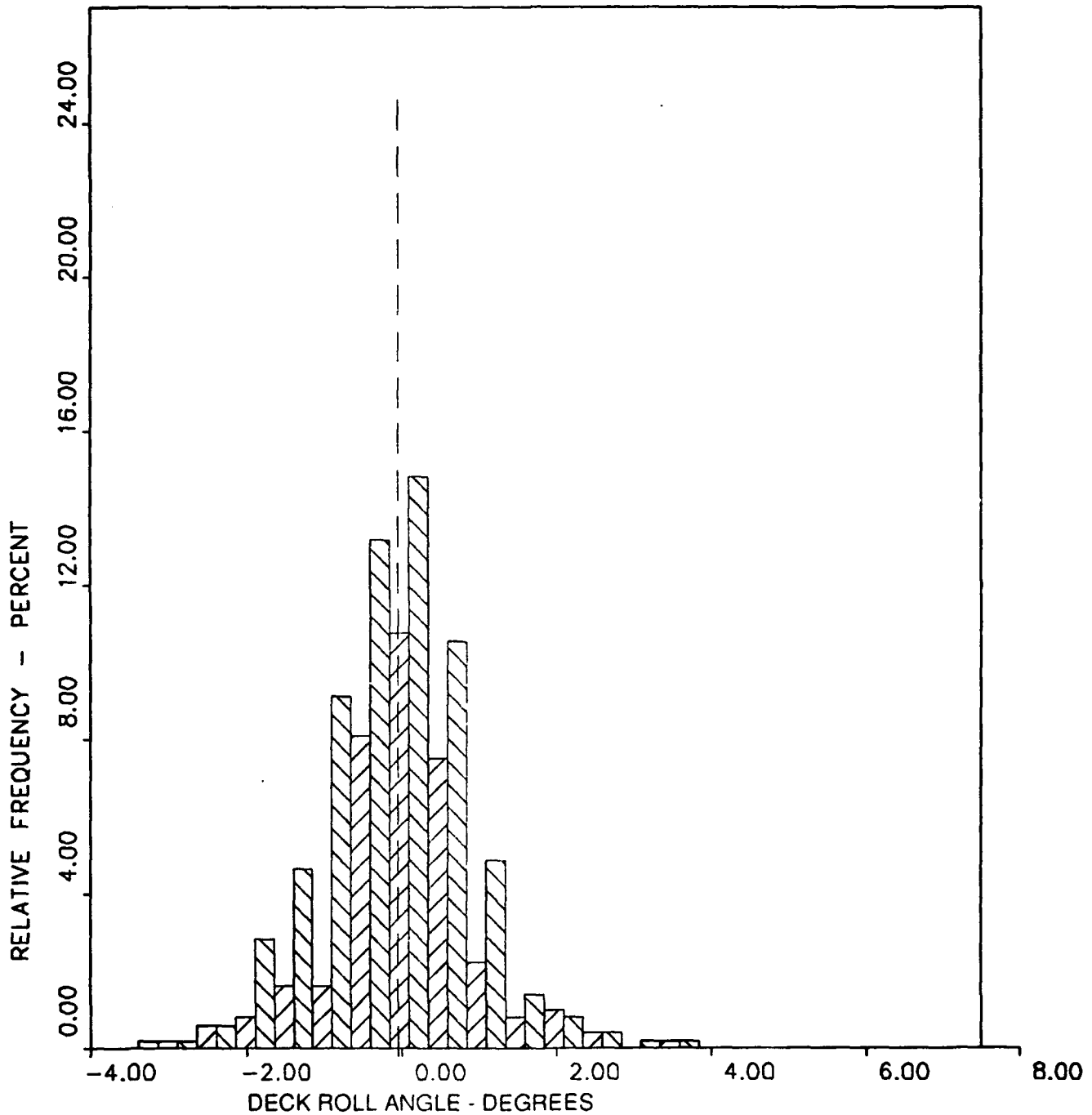
N= 493  $\bar{X}$ =-0.05 DEGREES

S= 0.95 DEGREES

A3= 0.13

A4= 4.35

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

FIGURE Q-45 FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 493  $\bar{X}$ =-0.05 DEGREES

S= 0.95 DEGREES

CURVE FITTED - NORMAL

A3= 0.13

A4= 4.35

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

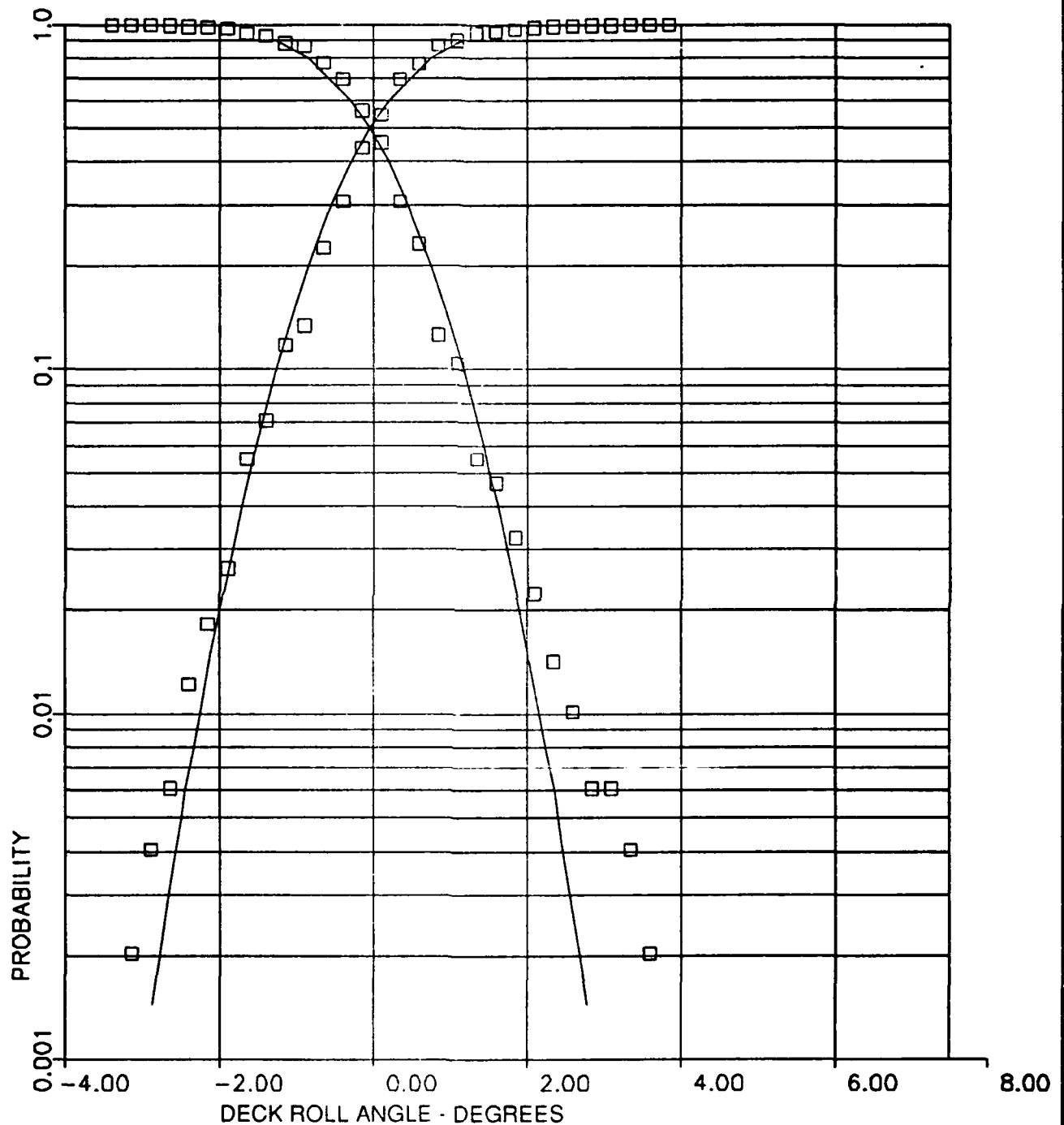


FIGURE Q-46 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

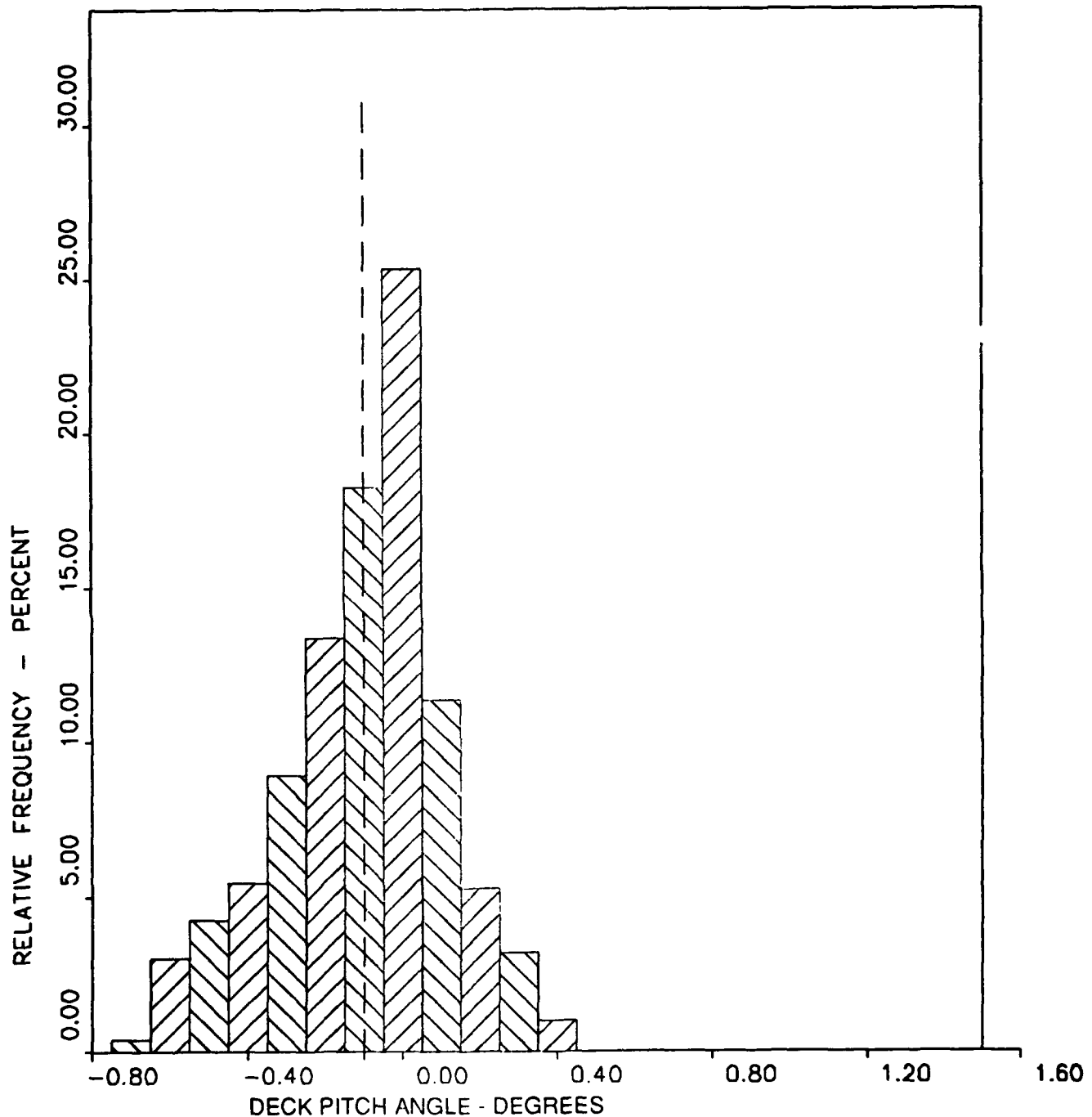
N= 493  $\bar{X}$ =-0.10 DEGREES

S= 0.21 DEGREES

A3=-0.39

A4= 3.03

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

FIGURE Q-47 FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 493

 $\bar{X} = -0.10$  DEGREES

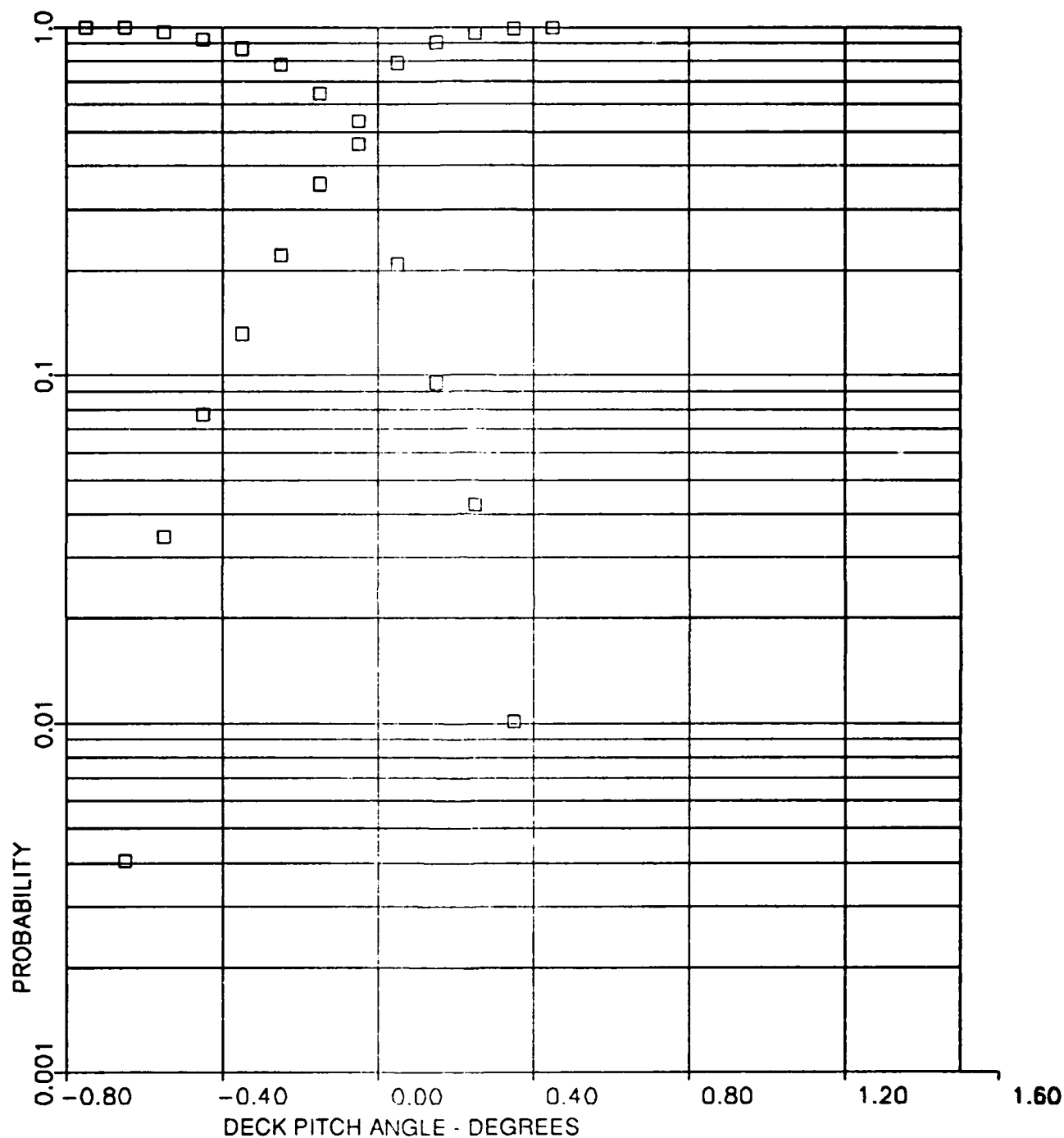
S= 0.21 DEGREES

CURVE FITTED - PEARSON TYPE III

A3=-0.39

A4= 3.03

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

FIGURE Q-48 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

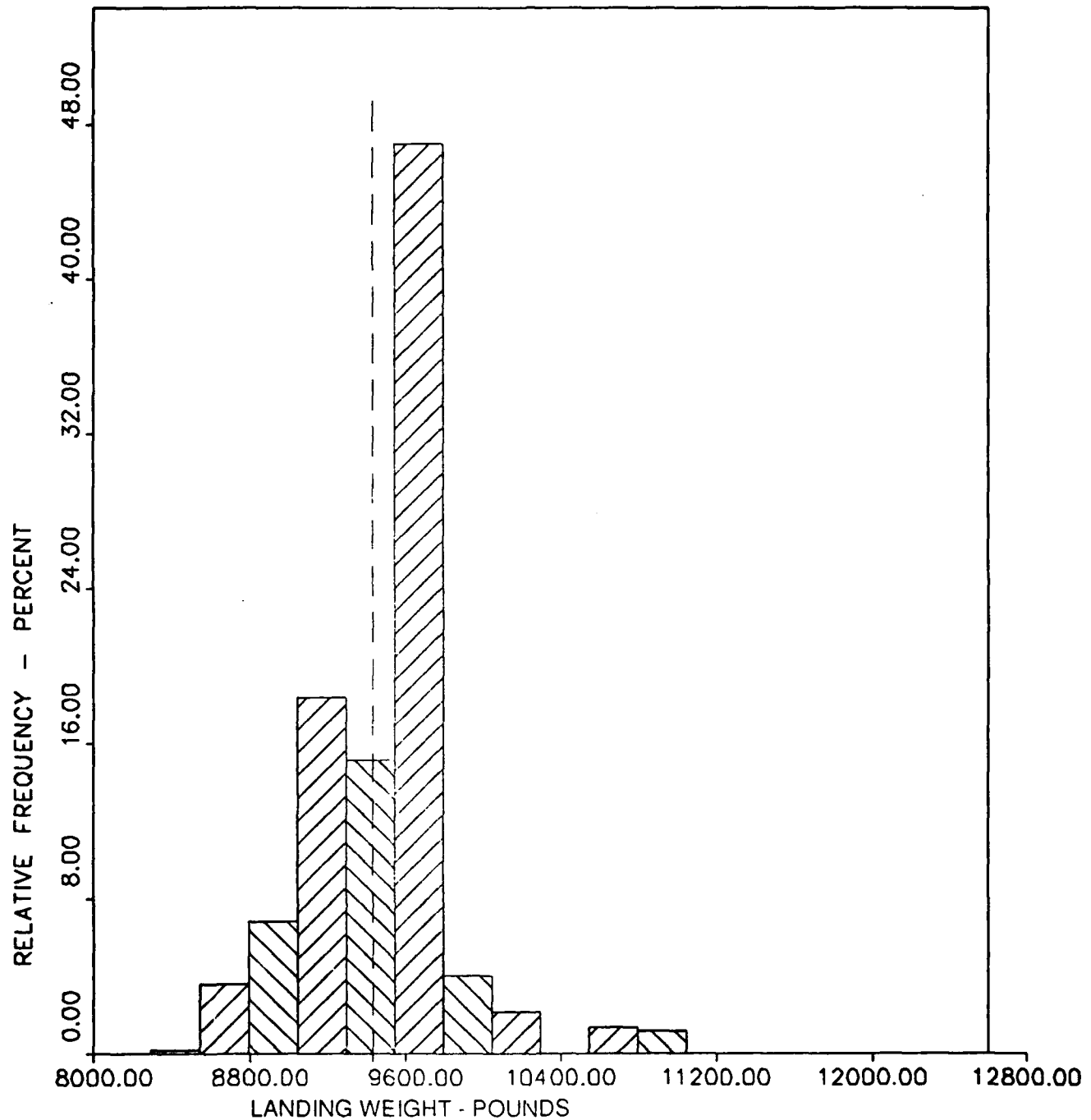
N= 496

 $\bar{X}$ = 9433.52 POUNDS

S= 367.16 POUNDS

A3= 0.87

A4= 6.67

FIGURE Q-49 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

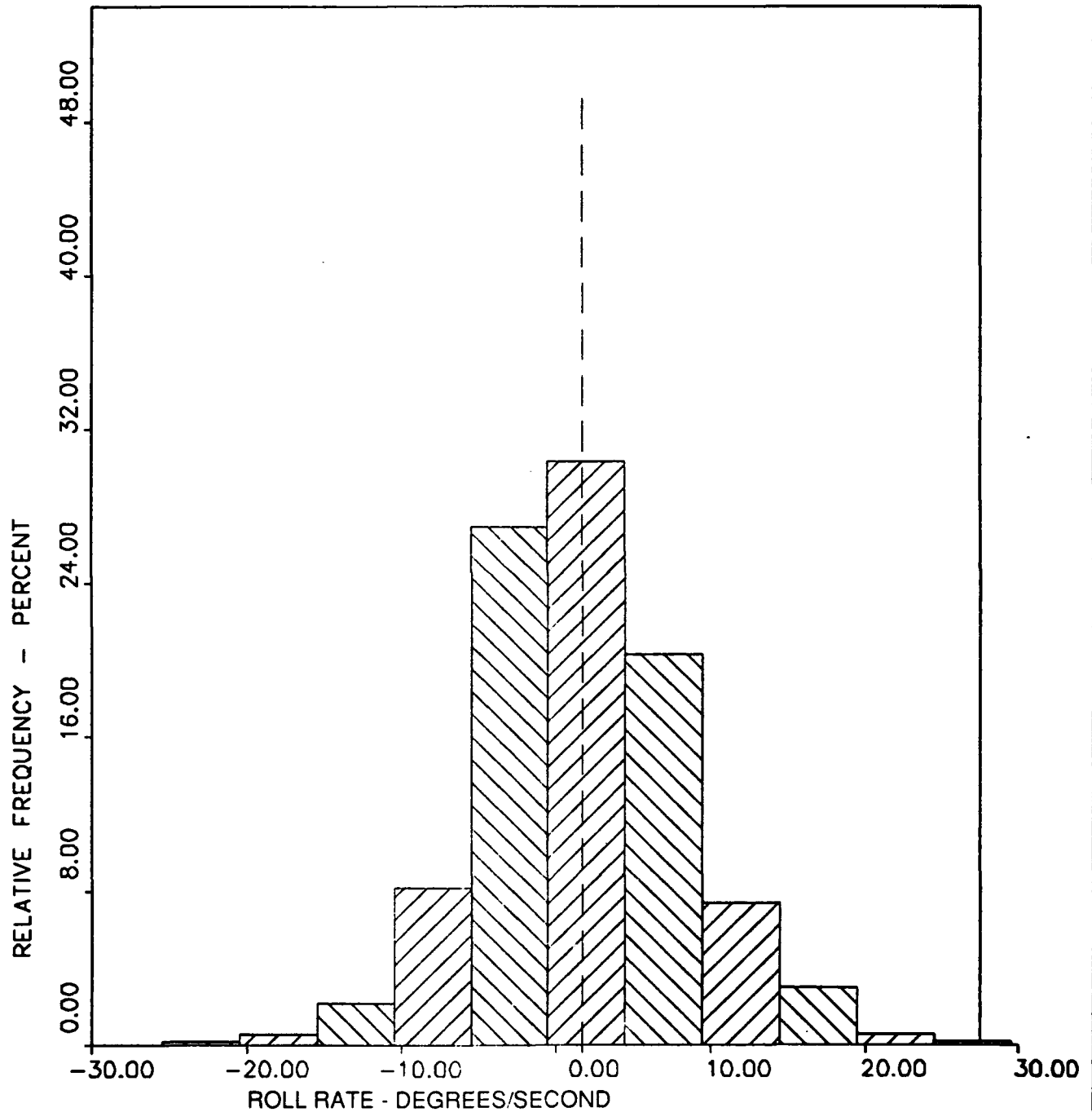
 $\bar{X}$ = 1.75 DEG/SEC

S= 6.59 DEG/SEC

A3= 0.10

A4= 3.68

POSITIVE VALUES INDICATE STARBOARD WING DOWN

FIGURE Q-50 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 1.75 DEG/SEC

S= 6.59 DEG/SEC

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

A3= 0.10

A4= 3.68

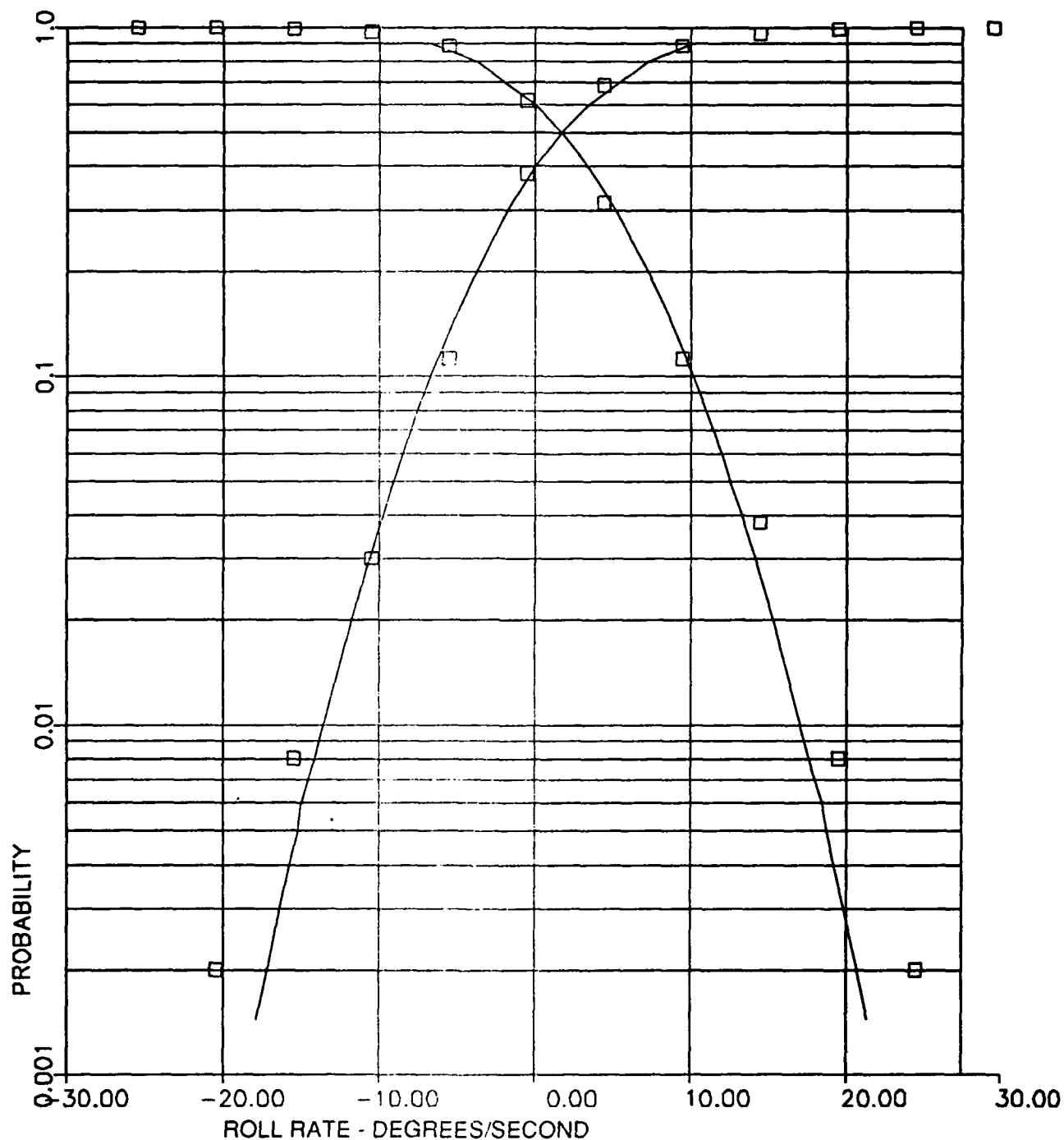


FIGURE Q-51 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

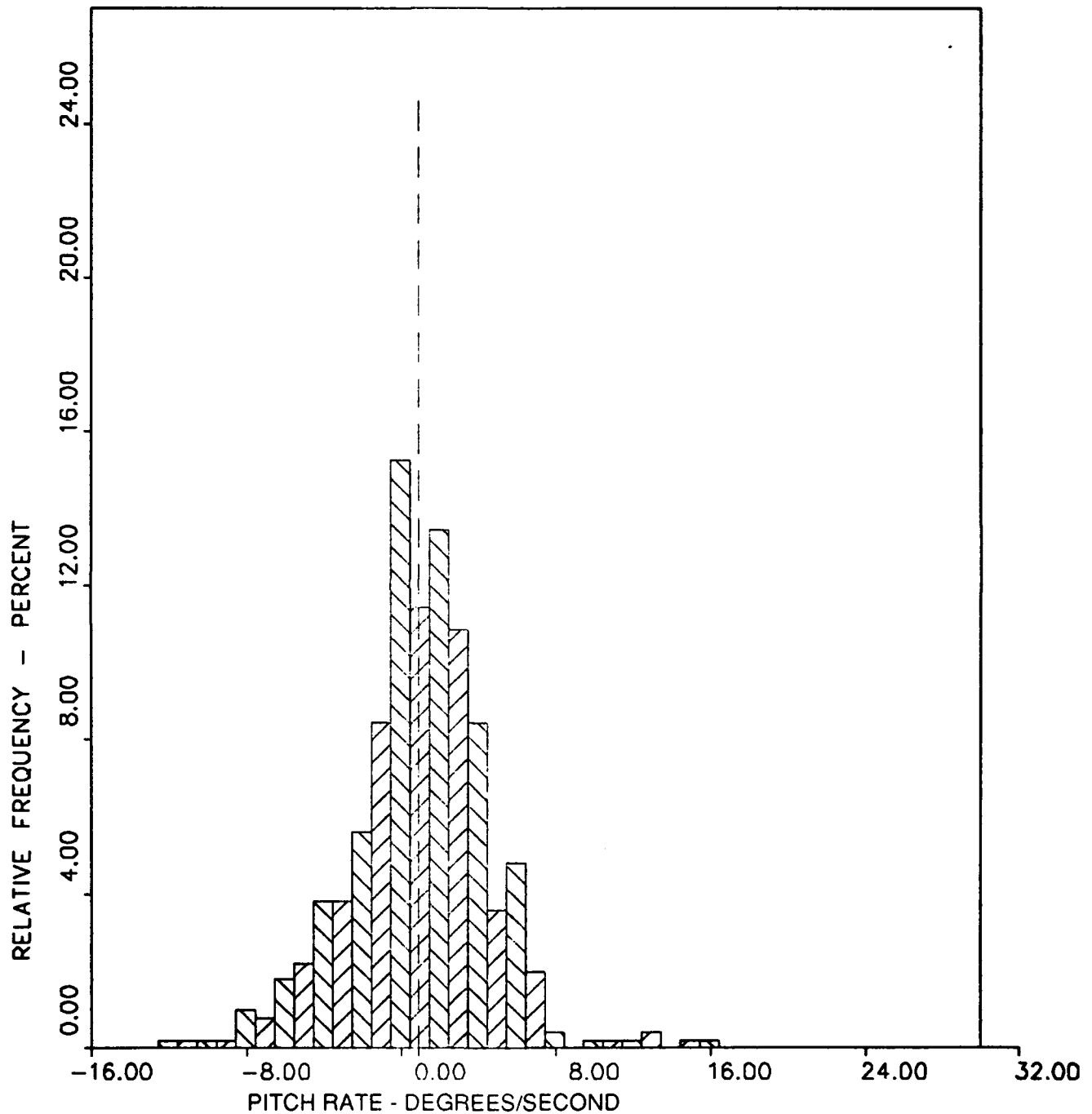
N= 498

 $\bar{X}$ = 0.90 DEG/SEC

S= 3.56 DEG/SEC

A3=-0.02

A4= 4.80

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRLFIGURE Q-52 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498  $\bar{X}$ = 0.90 DEG/SEC

S= 3.56 DEG/SEC

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE

MEASURED FROM HORIZONTAL TO FRL

A3=-0.02

A4= 4.80

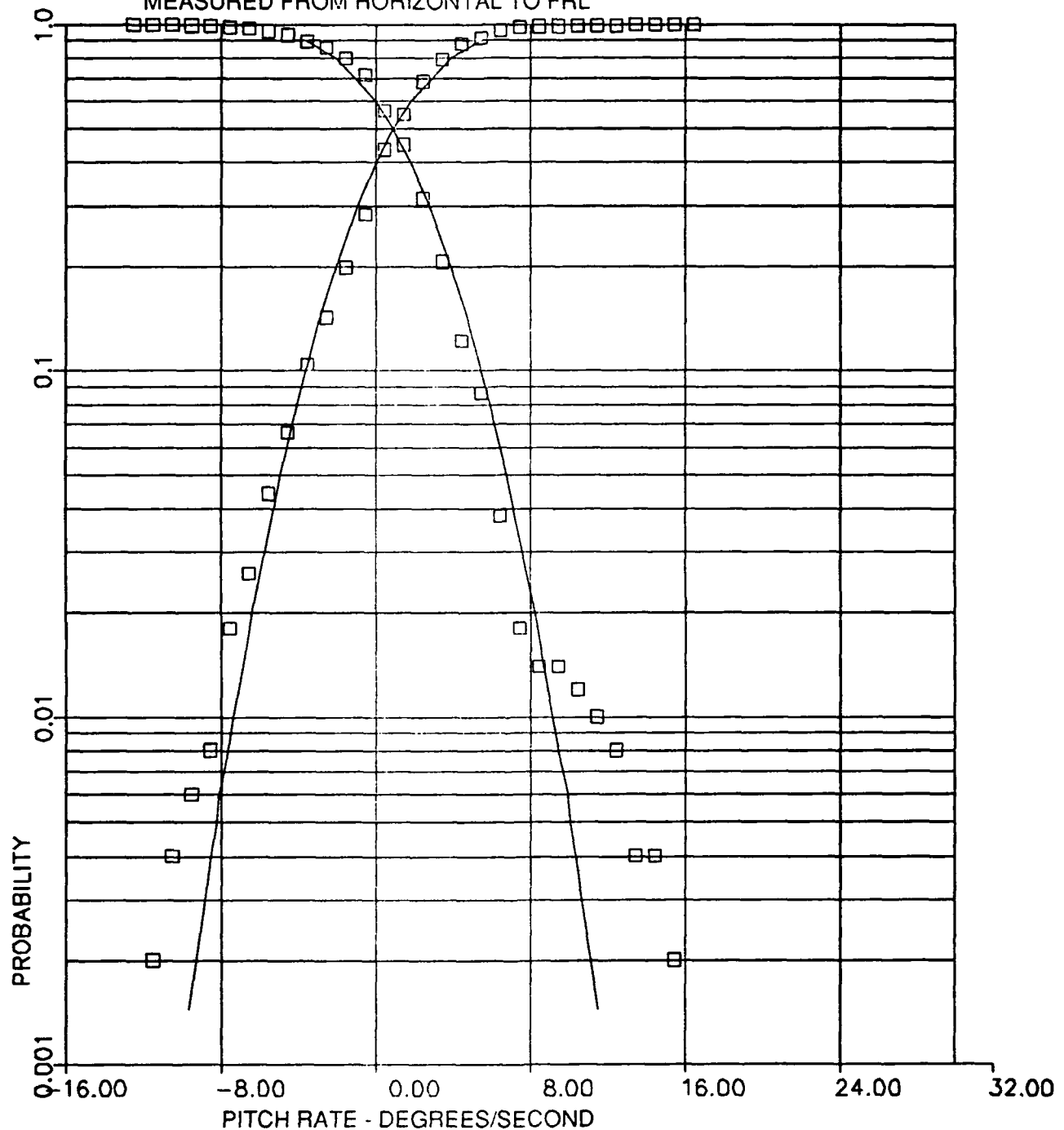


FIGURE Q-53 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

 $\bar{X}$ = 3.60 DEGREES

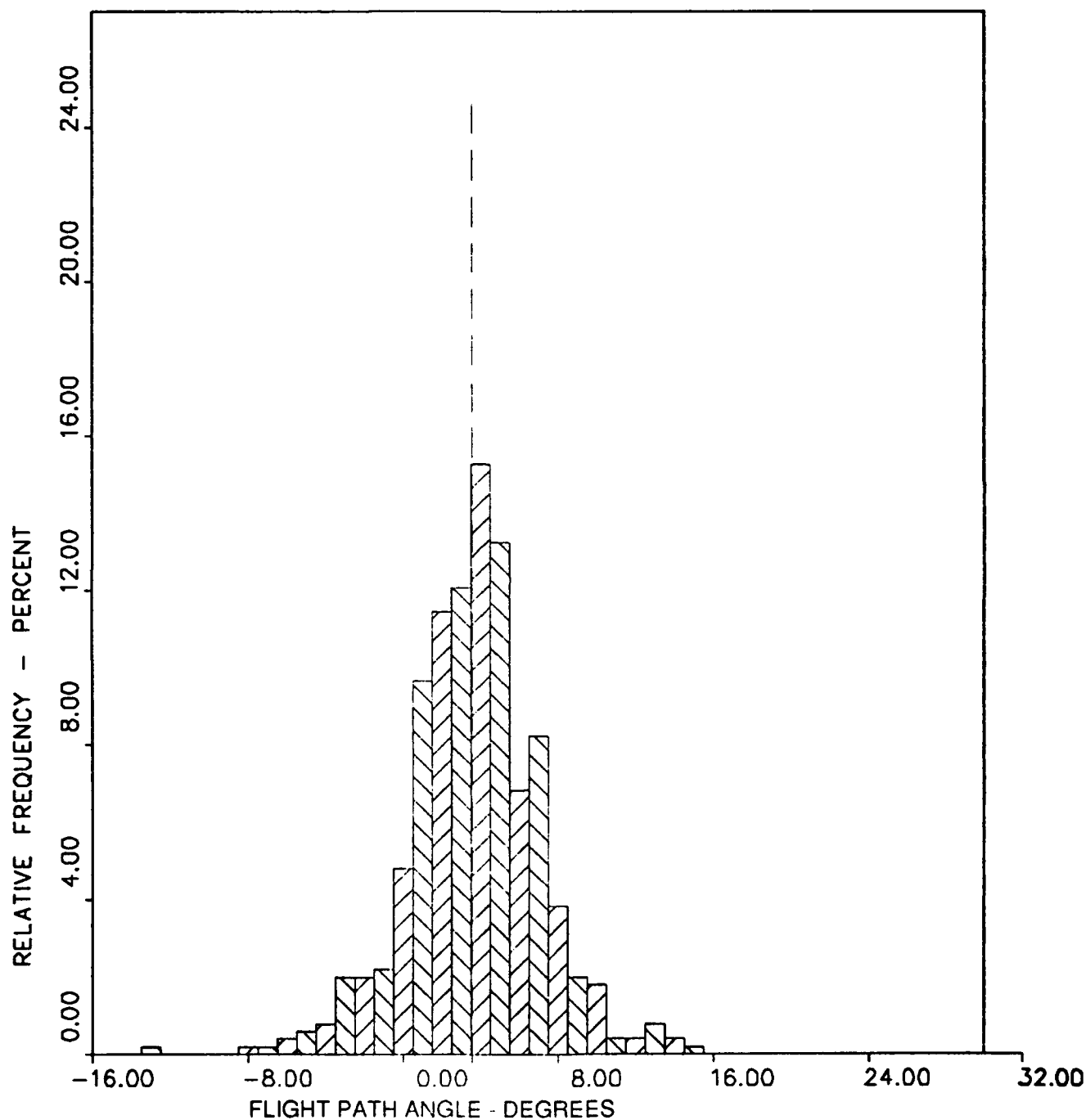
S= 3.41 DEGREES

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

A3=-0.19

A4= 4.86

FIGURE Q-54 PROBABILITY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498  $\bar{X}$ =-2.77 DEGREES

S= 2.26 DEGREES

A3= 0.38

A4= 10.10

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

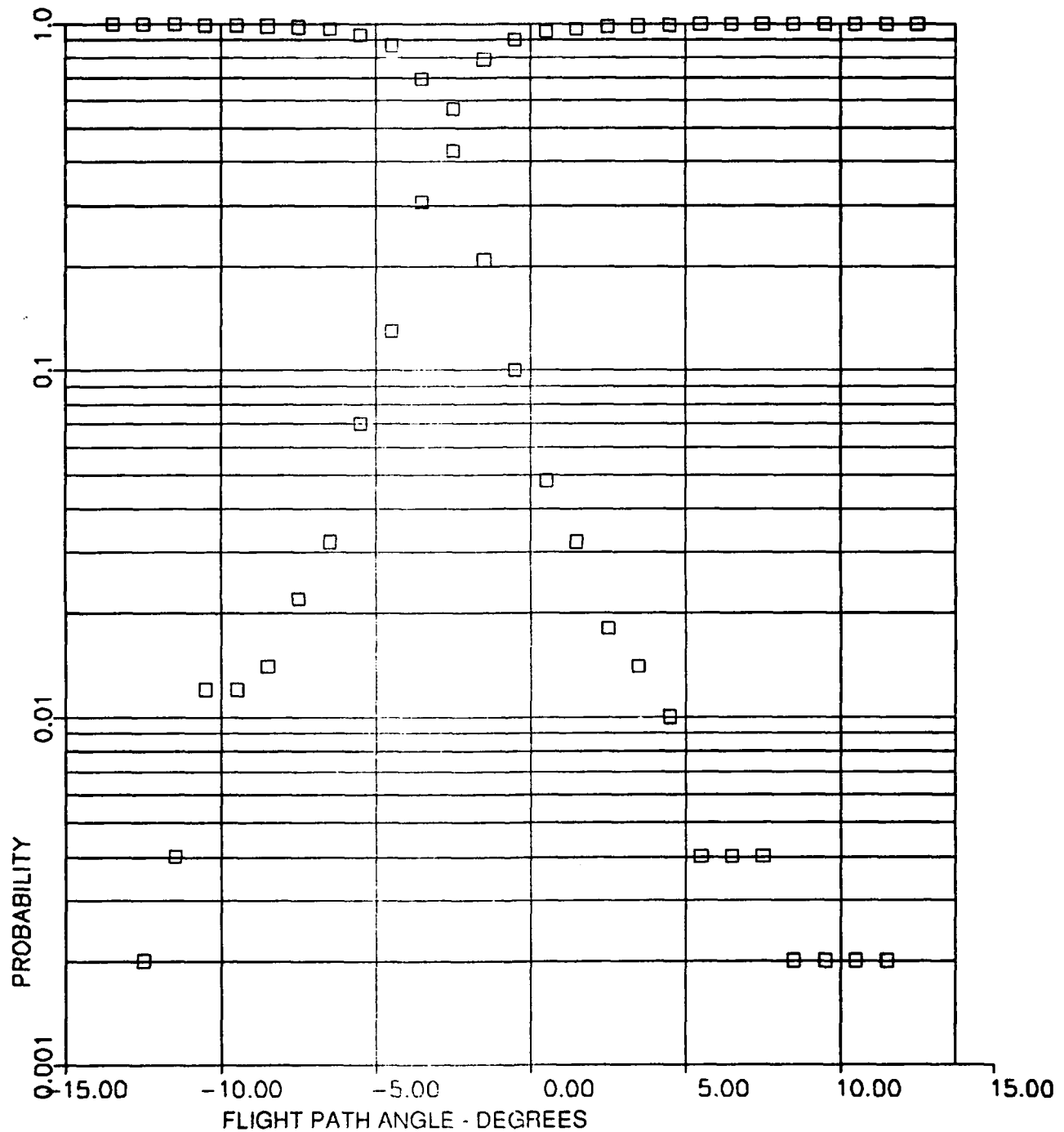


FIGURE Q-55 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498

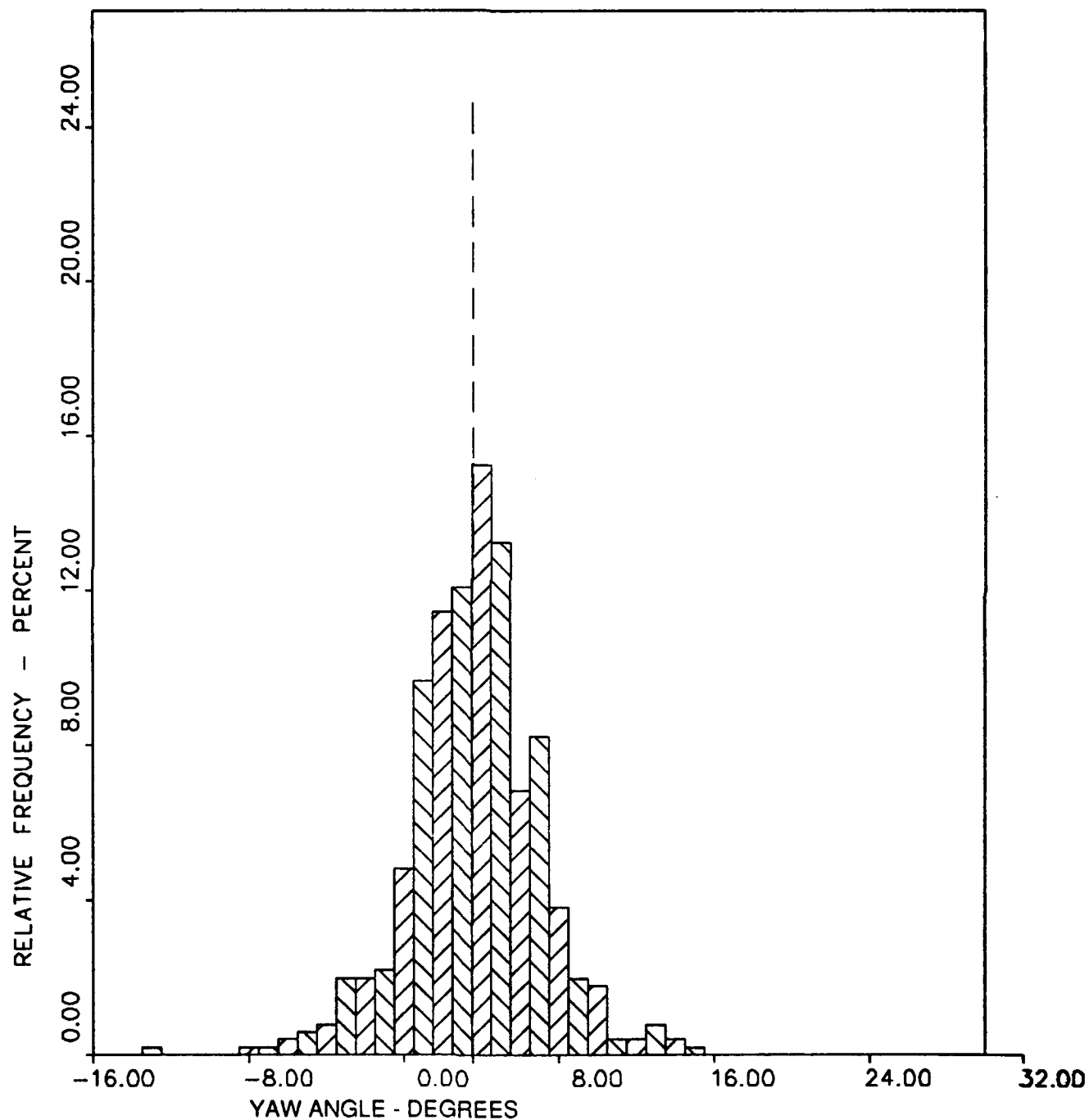
 $\bar{X}$ = 3.60 DEGREES

S= 3.41 DEGREES

A3=-0.19

A4= 4.86

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

FIGURE Q-56 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL T-2C  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 498  $\bar{X}$ = 3.60 DEGREES

S= 3.41 DEGREES

A3=-0.19

A4= 4.86

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

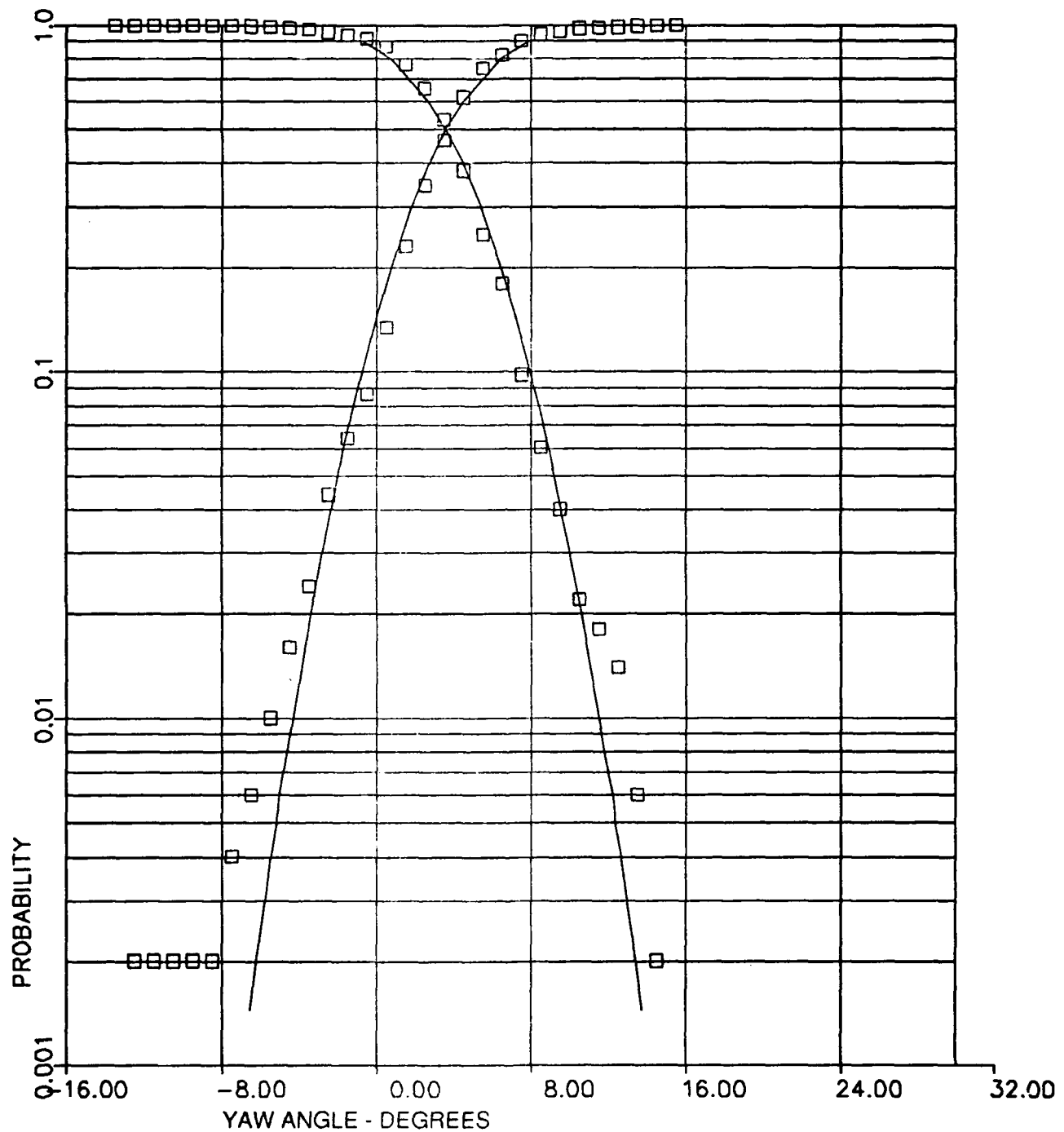


FIGURE Q-57 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

# **APPENDIX R**

## **TA-4J AIRCRAFT DAY CARRIER LANDINGS**

**USS ENTERPRISE  
CVN-65**

## Appendix R:

Frequency and Probability Distributions,  
TA-4J Aircraft, Day Landings

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MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 635

AIRCRAFT

USS ENTERPRISE

(CVN-65)

SETTING= 3.50 DEGREES

 $\bar{X}$ = 26.37 KNOTS

S= 3.30 KNOTS

A3= 0.31

A4= 3.44

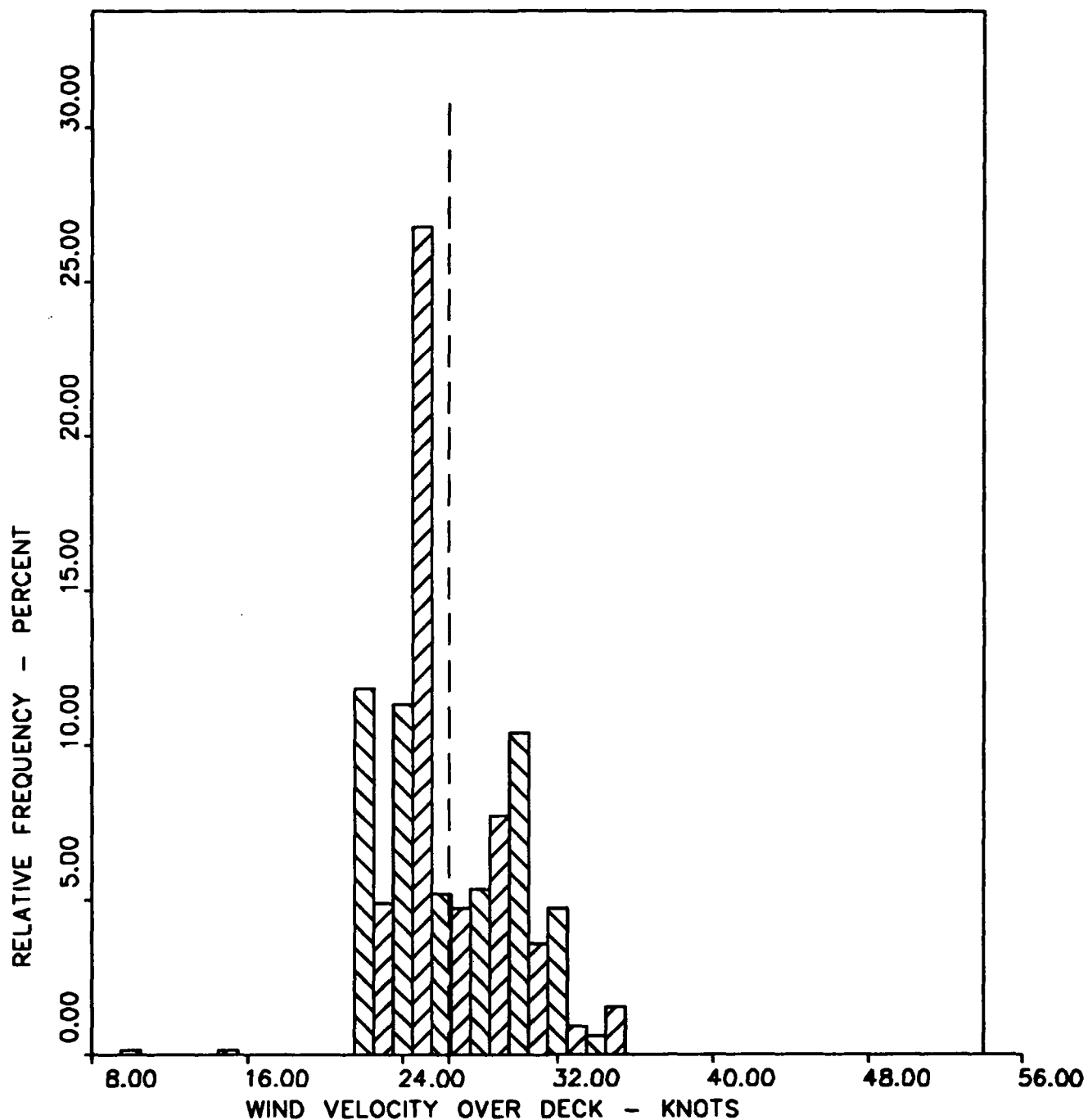


FIGURE R-1 FREQUENCY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 26.37 KNOTS

S= 3.30 KNOTS

CURVE FITTED - PEARSON TYPE III

A3= 0.31

A4= 3.44

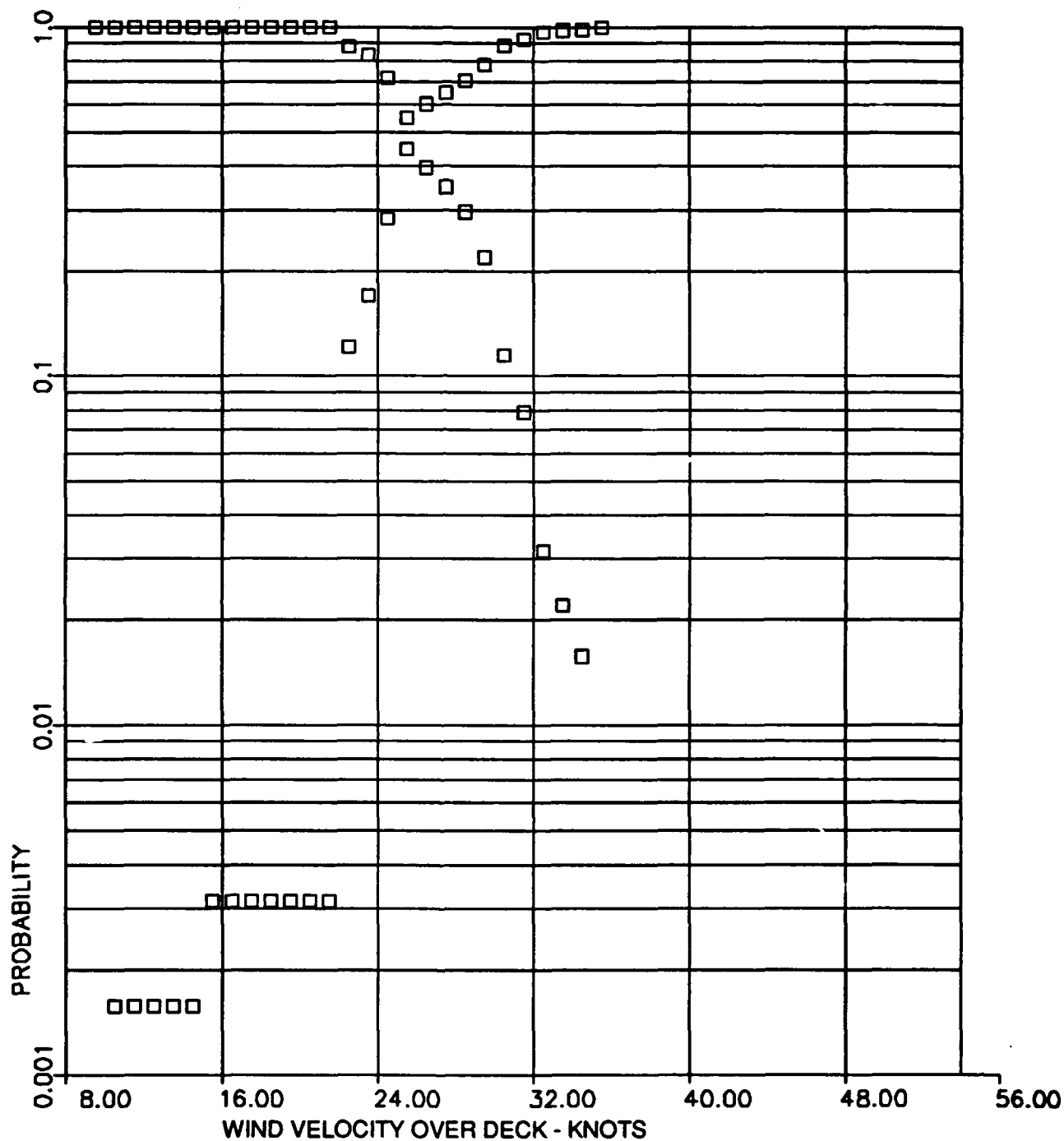


FIGURE R-2 PROBABILITY DISTRIBUTION OF  
WIND VELOCITY OVER THE DECK

MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 635

AIRCRAFT

USS ENTERPRISE

(CVN-65)

SETTING= 3.50 DEGREES  
 $\bar{X}$ = 139.79 KNOTS  
S= 6.73 KNOTS

A3= 0.46  
A4= 6.09

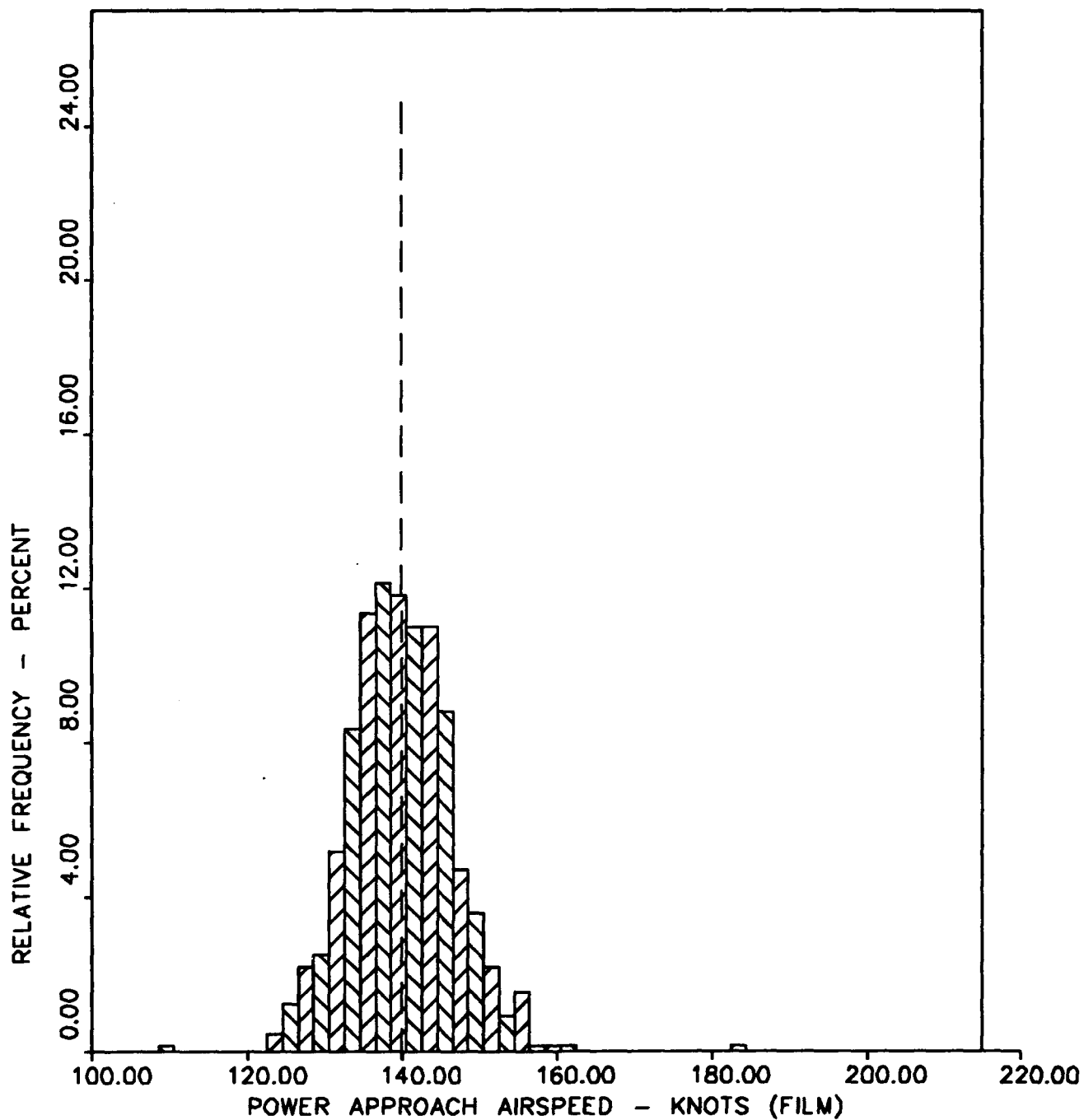


FIGURE R-3 FREQUENCY DISTRIBUTION OF FILM MEASURED  
POWER APPROACH AIRSPEED AT THE RAMP

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

$\bar{X}$ = 139.79 KNOTS

S= 6.73 KNOTS

CURVE FITTED - PEARSON TYPE III

A3= 0.46

A4= 6.09

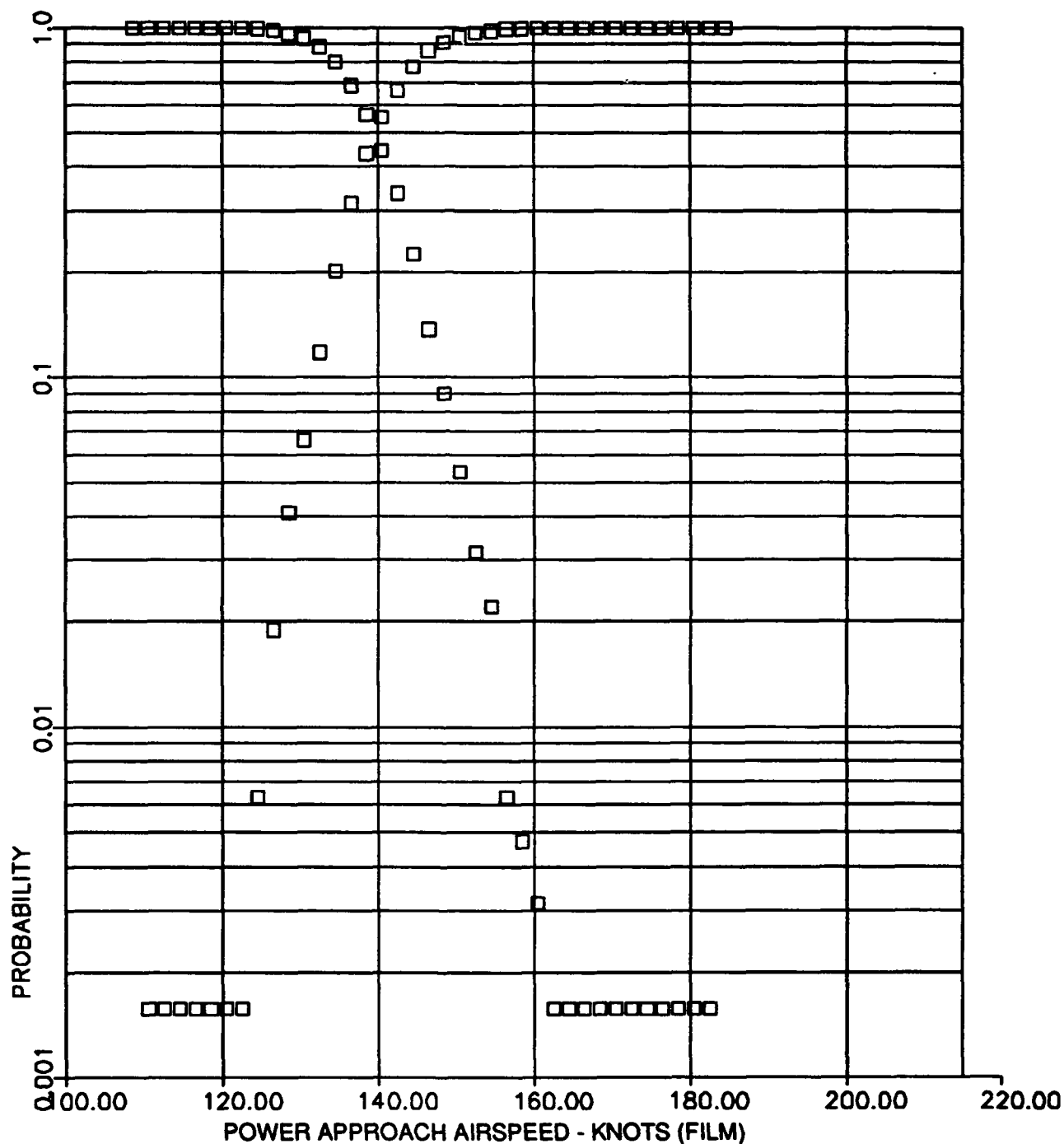


FIGURE R-4 PROBABILITY DISTRIBUTION OF POWER  
APPROACH AIRSPEED AT THE RAMP (FILM)

MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 617

AIRCRAFT

USS ENTERPRISE

(CVN-65)

SETTING= 3.50 DEGREES  
 $\bar{X}$ = 15.81 FEET  
S= 3.20 FEET

A3= 0.66  
A4= 3.57

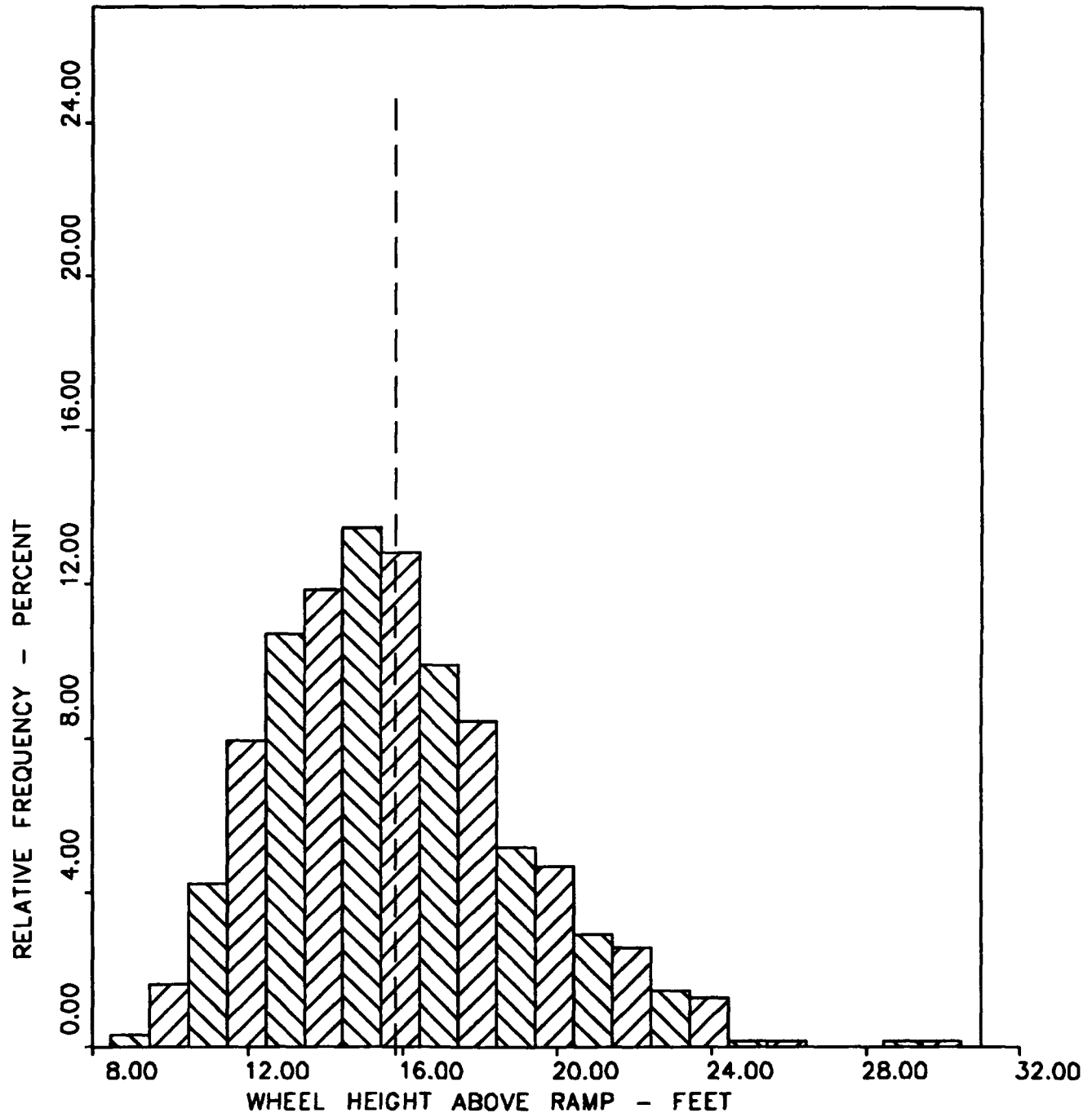


FIGURE R-5 FREQUENCY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 617

 $\bar{X}$ = 15.81 FEET

S= 3.20 FEET

CURVE FITTED - PEARSON TYPE III

A3= 0.66

A4= 3.57

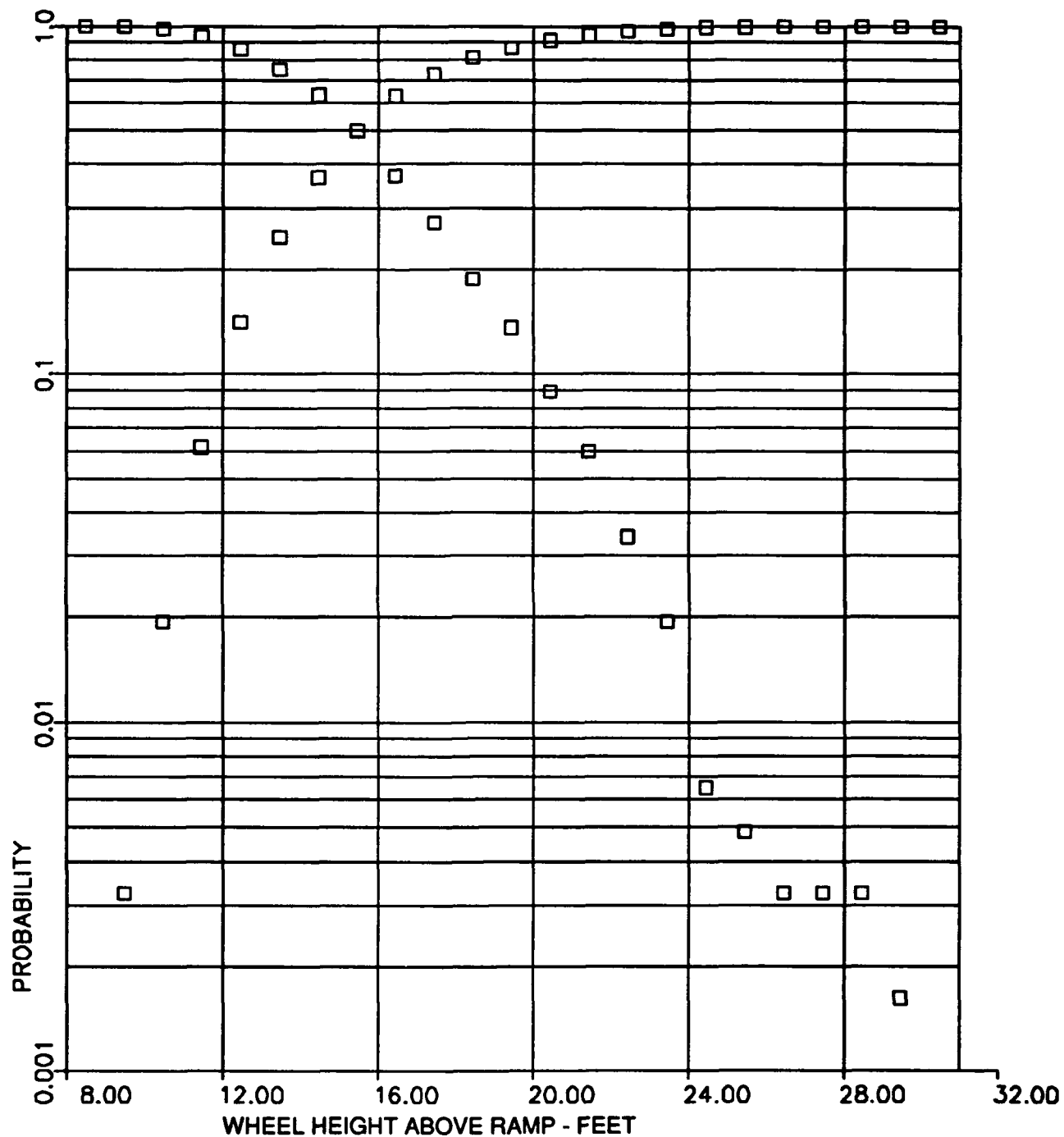


FIGURE R-6 PROBABILITY DISTRIBUTION OF AIRCRAFT  
WHEEL HEIGHT ABOVE CARRIER RAMP

MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 635

AIRCRAFT  
SETTING= 3.50 DEGREES  
 $\bar{X}$ = 10.21 FEET/SEC  
S= 2.33 FEET/SEC

USS ENTERPRISE

(CVN-65)

A3=-0.32  
A4= 3.70

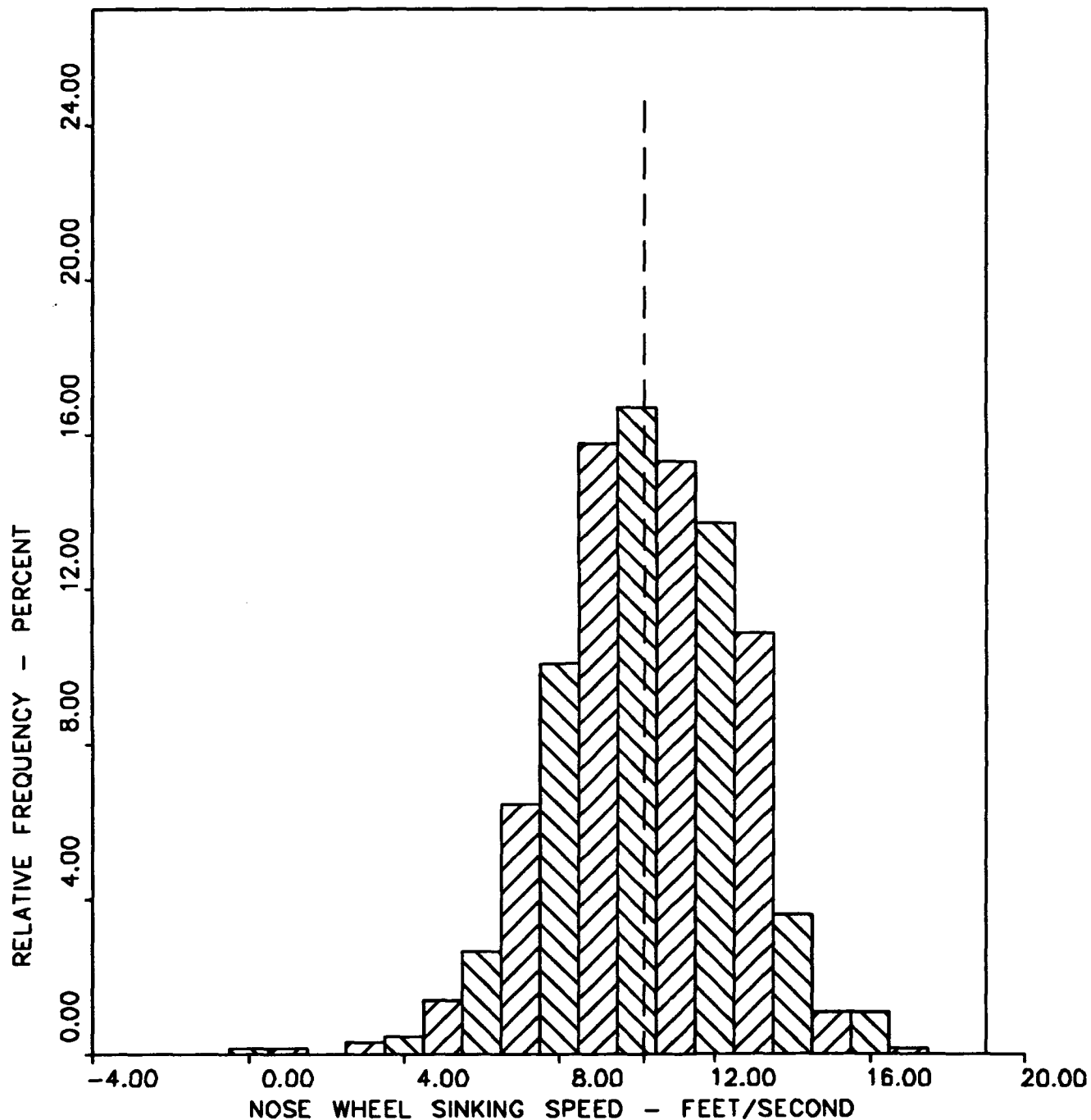


FIGURE R-7 FREQUENCY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED



MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

$\bar{X}$ = 10.21 FEET/SEC

S= 2.33 FEET/SEC

CURVE FITTED - PEARSON TYPE III

A3=-0.32

A4= 3.70

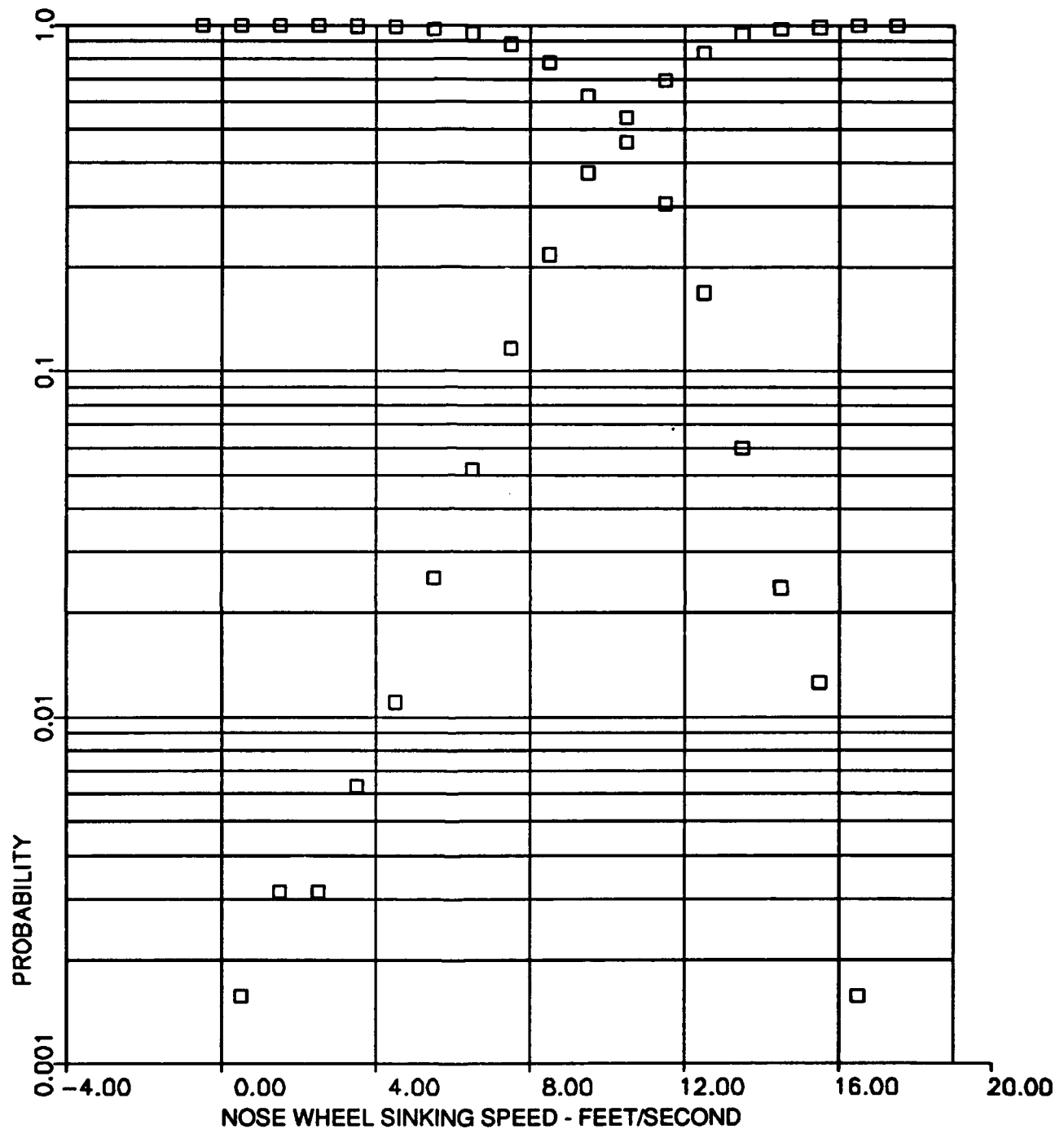


FIGURE R-8 PROBABILITY DISTRIBUTION OF  
NOSE WHEEL SINKING SPEED

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 10.37 FEET/SEC

S= 2.33 FEET/SEC

A3= 0.18

A4= 3.13

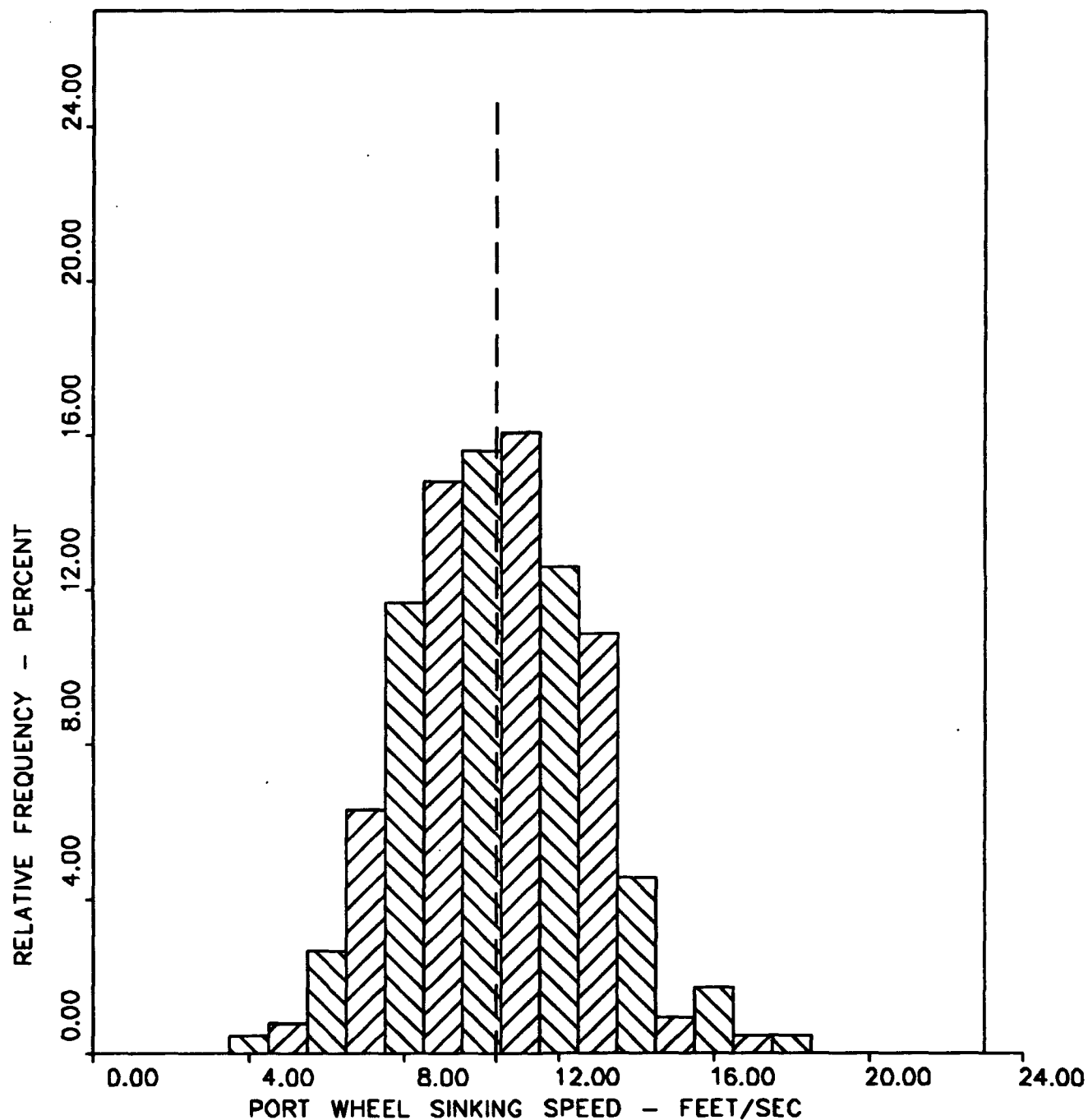


FIGURE R-9 FREQUENCY DISTRIBUTION OF PORT WHEEL  
SINKING SPEED AT PORT WHEEL TOUCHDOWN

MODEL TA-4

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 10.37 FEET/SEC

S= 2.33 FEET/SEC

CURVE FITTED - NORMAL

A3= 0.18

A4= 3.13

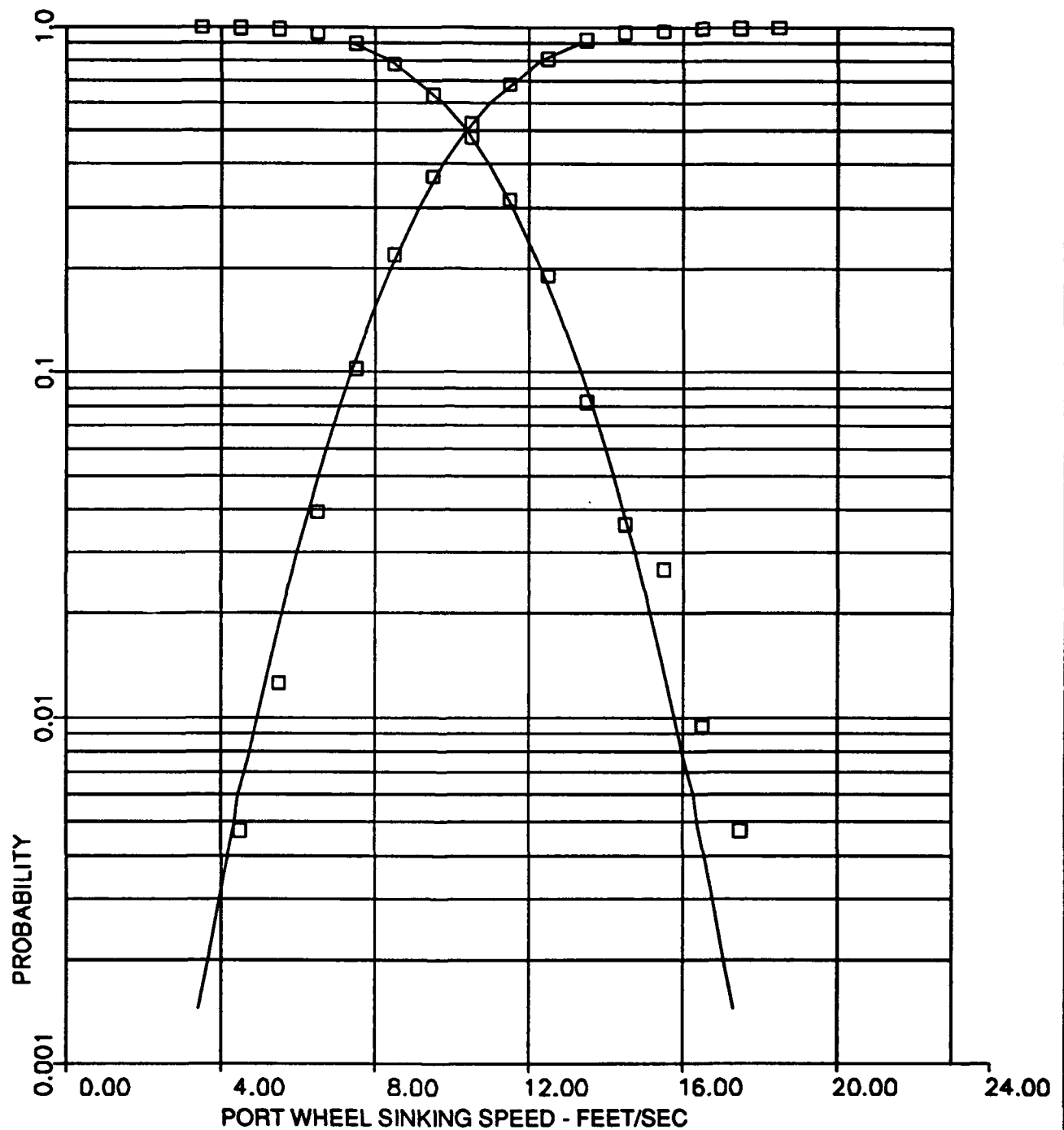


FIGURE R-10 PROBABILITY DISTRIBUTION OF  
PORT WHEEL SINKING SPEED

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 10.03 FEET/SEC

S= 2.28 FEET/SEC

A3= 0.07

A4= 3.15

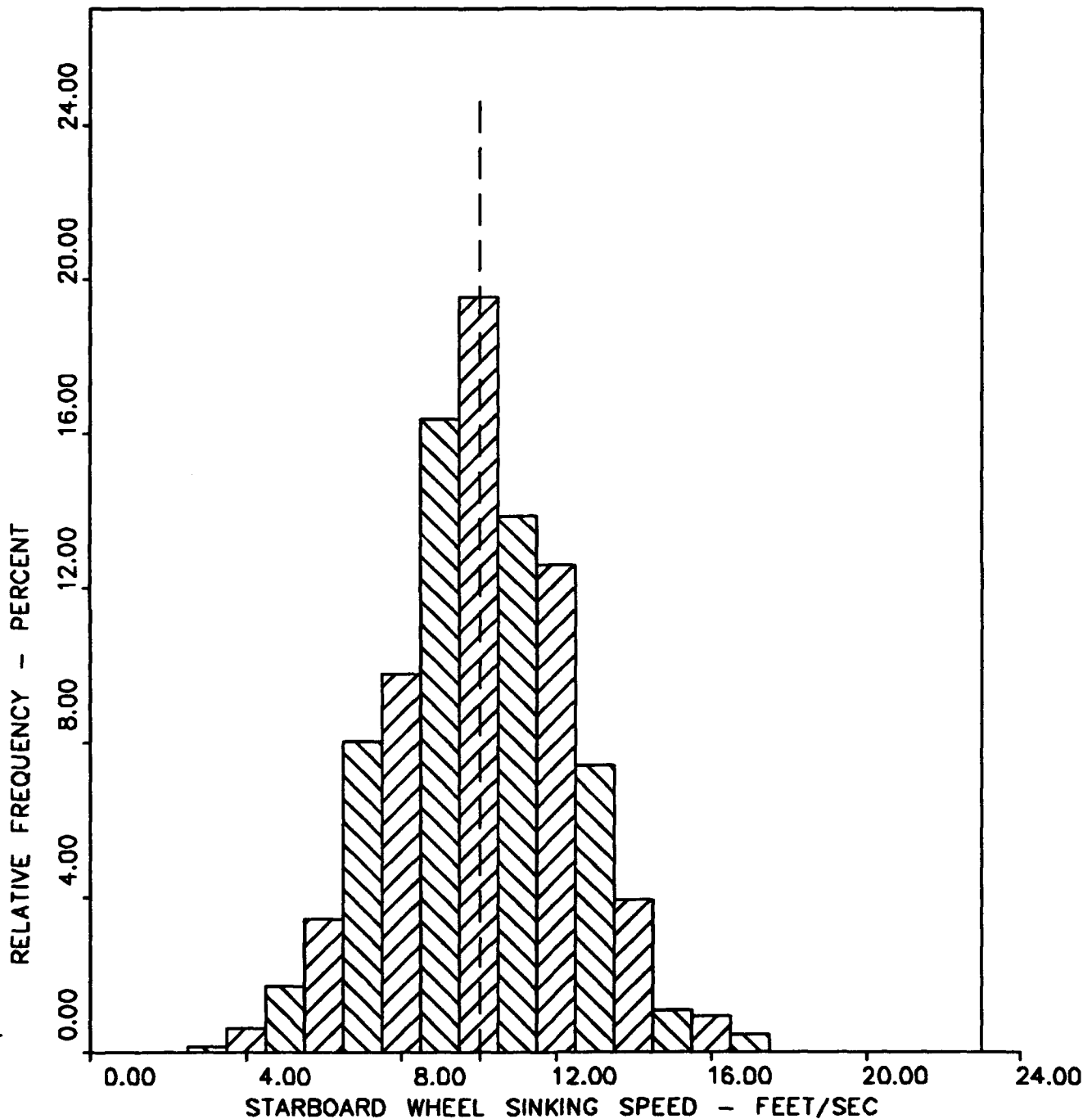


FIGURE R-11 FREQUENCY DISTRIBUTION OF STARBOARD WHEEL  
SINKING SPEED AT STARBOARD WHEEL TOUCHDOWN

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

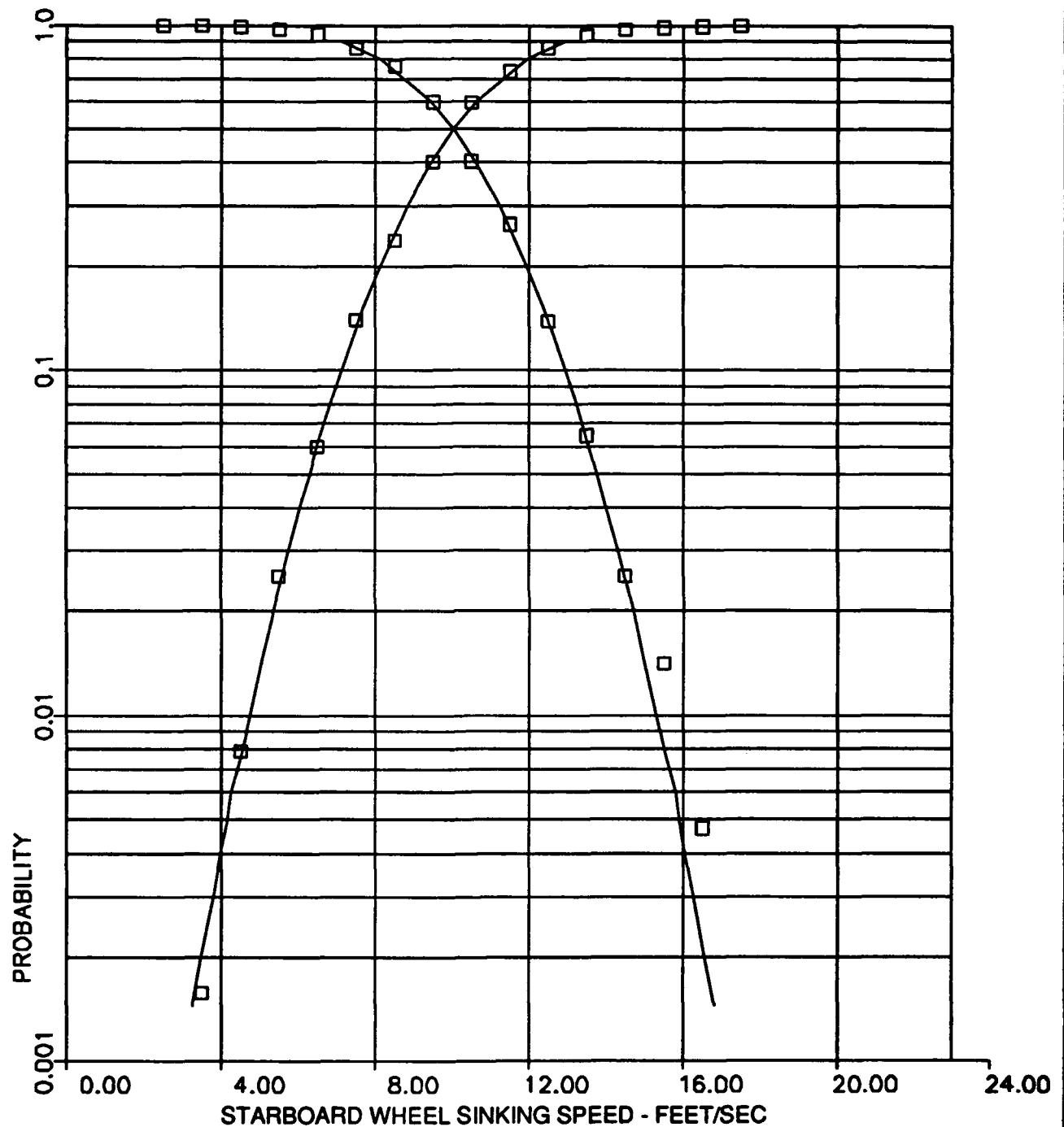
N= 635  $\bar{X}$ = 10.03 FEET/SEC

S= 2.28 FEET/SEC

CURVE FITTED - NORMAL

A3= 0.07

A4= 3.15

FIGURE R-12 PROBABILITY DISTRIBUTION OF  
STARBOARD WHEEL SINKING SPEED

MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 635

AIRCRAFT

USS ENTERPRISE

(CVN-65)

SETTING= 3.50 DEGREES  
 $\bar{x}$ = 10.27 FEET/SEC  
S= 2.25 FEET/SEC

A3= 0.16  
A4= 3.23

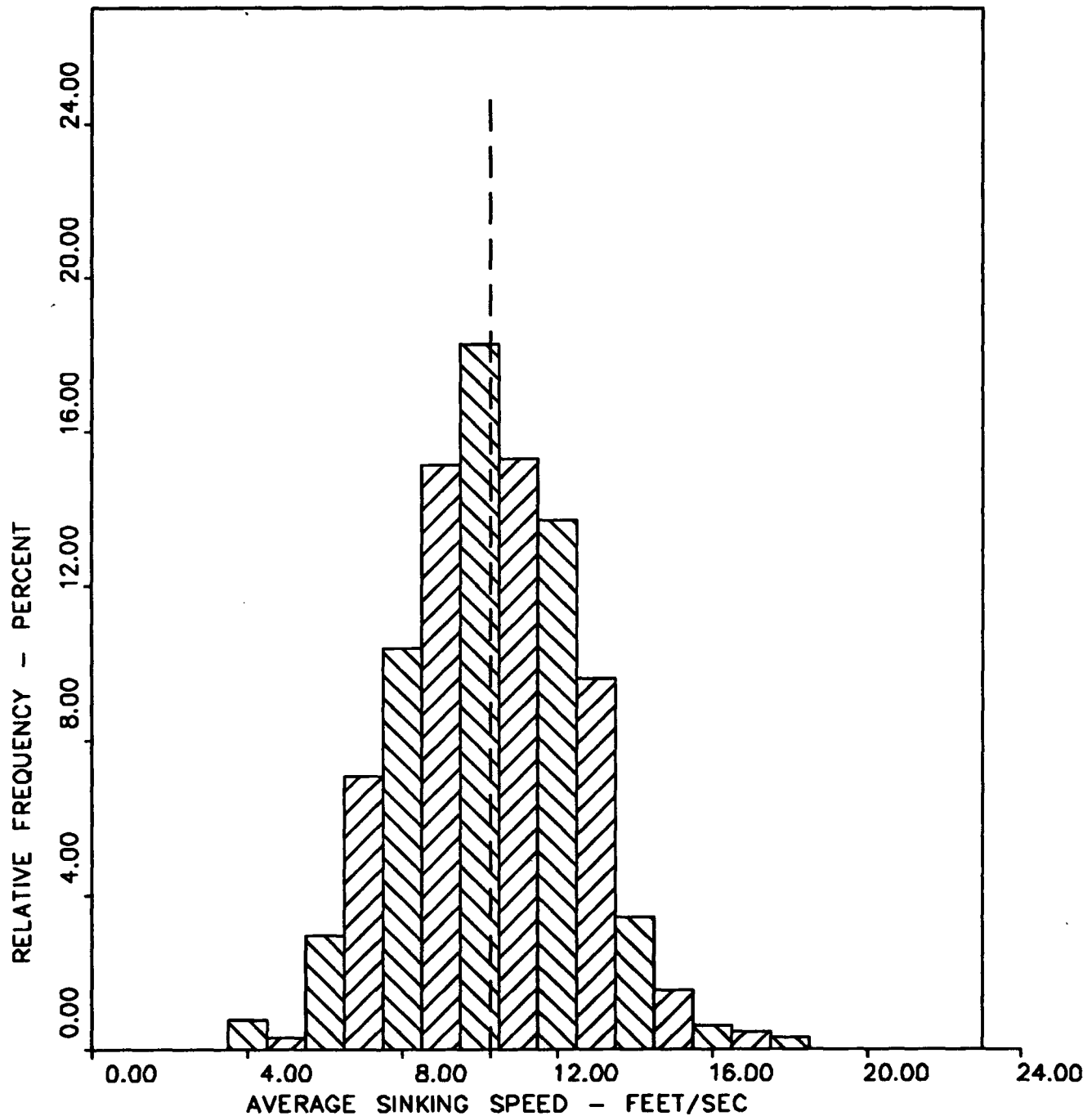


FIGURE R-13 FREQUENCY DISTRIBUTION OF AVG SINKING SPEED  
OF MAIN WHEEL AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 10.27 FEET/SEC

S= 2.25 FEET/SEC

CURVE FITTED - NORMAL

A3= 0.16

A4= 3.23

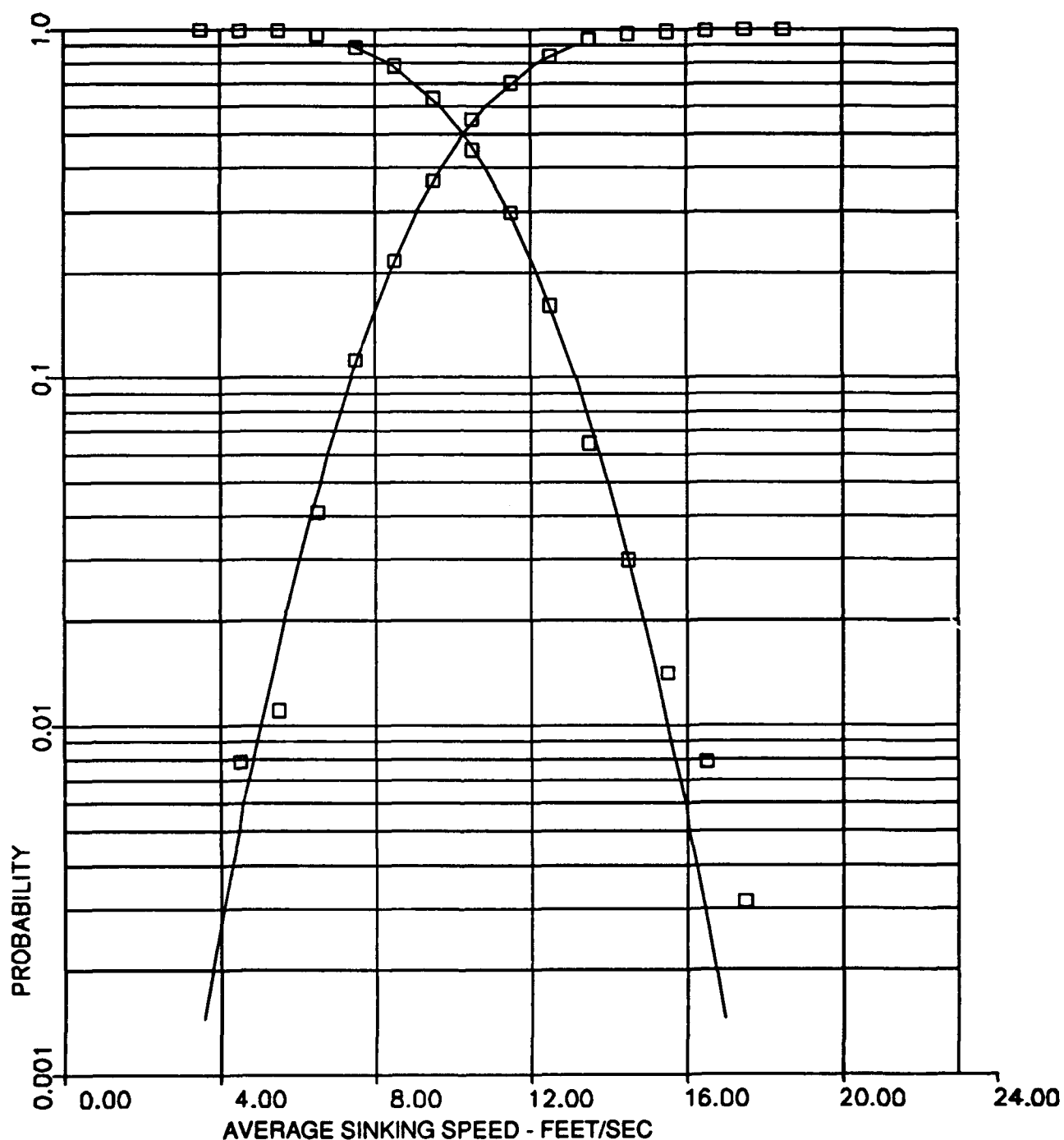


FIGURE R-14 PROBABILITY DISTRIBUTION OF AVERAGE SINKING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 120

 $\bar{X}$ = 9.33 FEET/SEC

S= 2.52 FEET/SEC

A3= 0.05

A4= 3.39

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

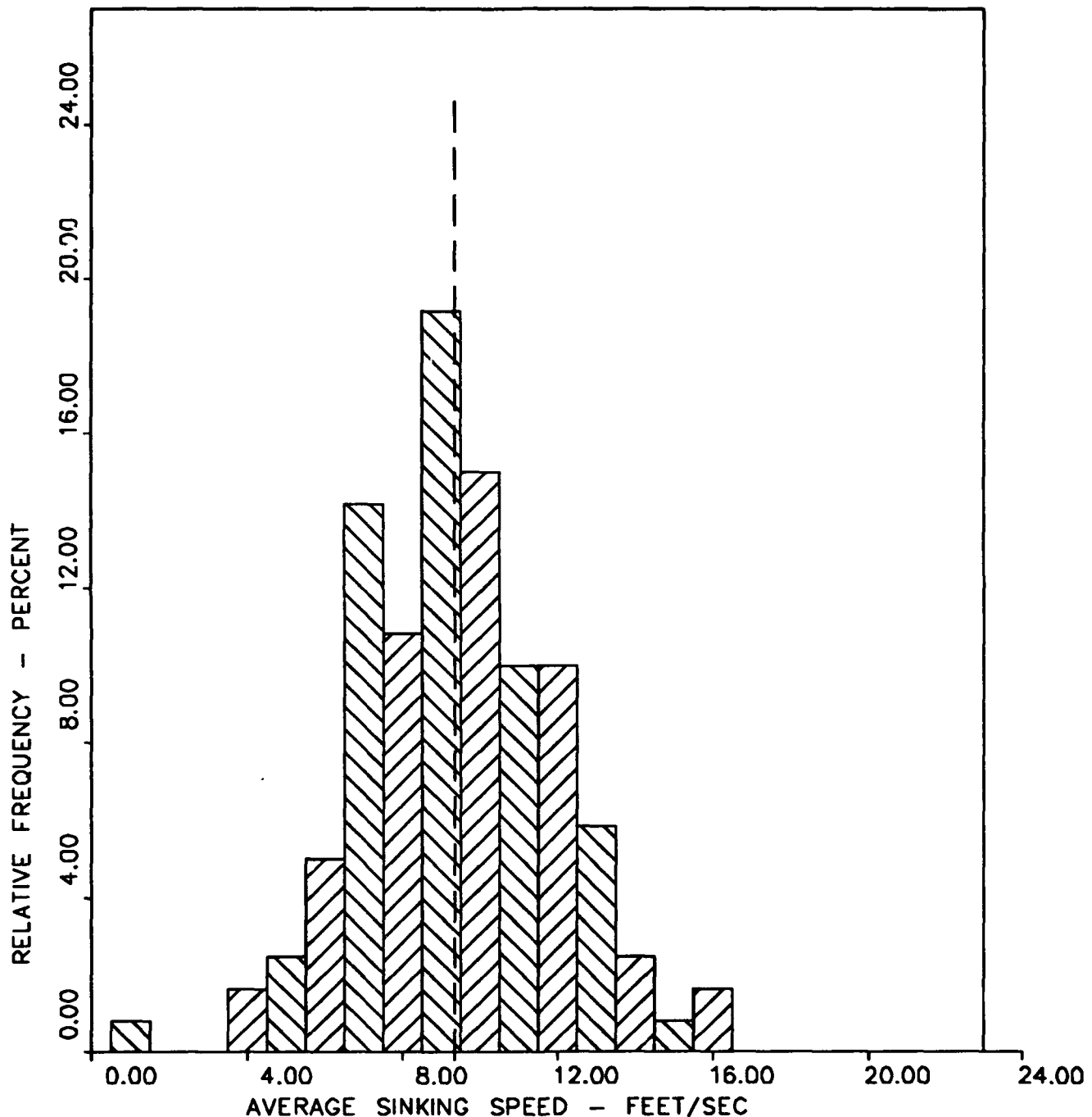


FIGURE R-15 FREQUENCY DISTRIBUTION OF AVERAGE SINKING  
SPEED OF MAIN WHEELS AT FREE FLIGHT



MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 120

 $\bar{X}$ = 9.33 FEET/SEC

S= 2.52 FEET/SEC

CURVE FITTED - NORMAL

A3= 0.05

A4= 3.39

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

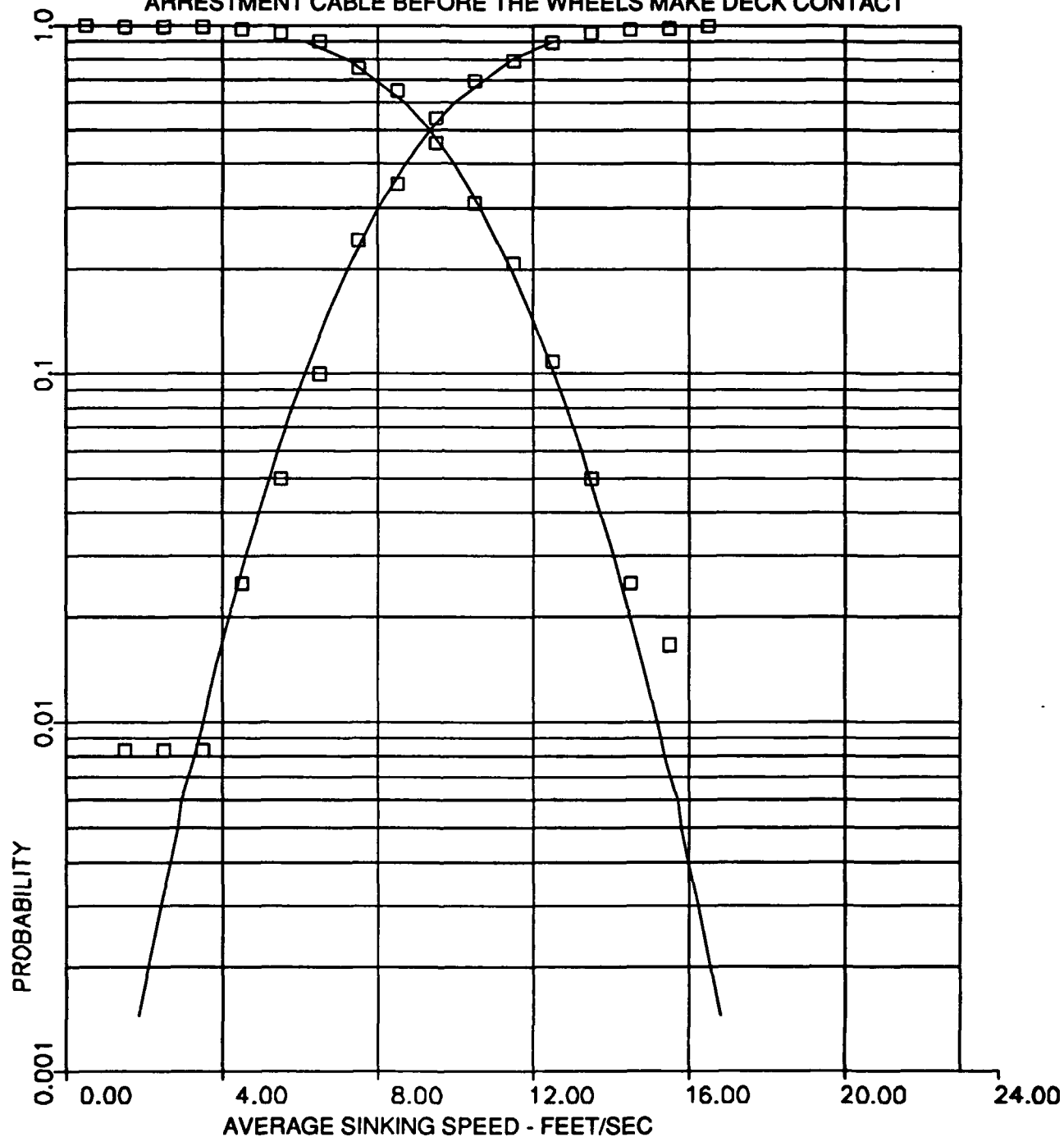


FIGURE R-16 PROBABILITY DISTRIBUTION OF AVERAGE  
SINKING SPEED AT FREE FLIGHT

MODEL TA-4      AIRCRAFT      USS ENTERPRISE      (CVN-65)  
DAY LANDINGS  
FRESNEL LENS      SETTING= 3.50 DEGREES  
N= 635       $\bar{X}$ = 1.09      A3= 2.75  
S= 0.10      A4= 35.05

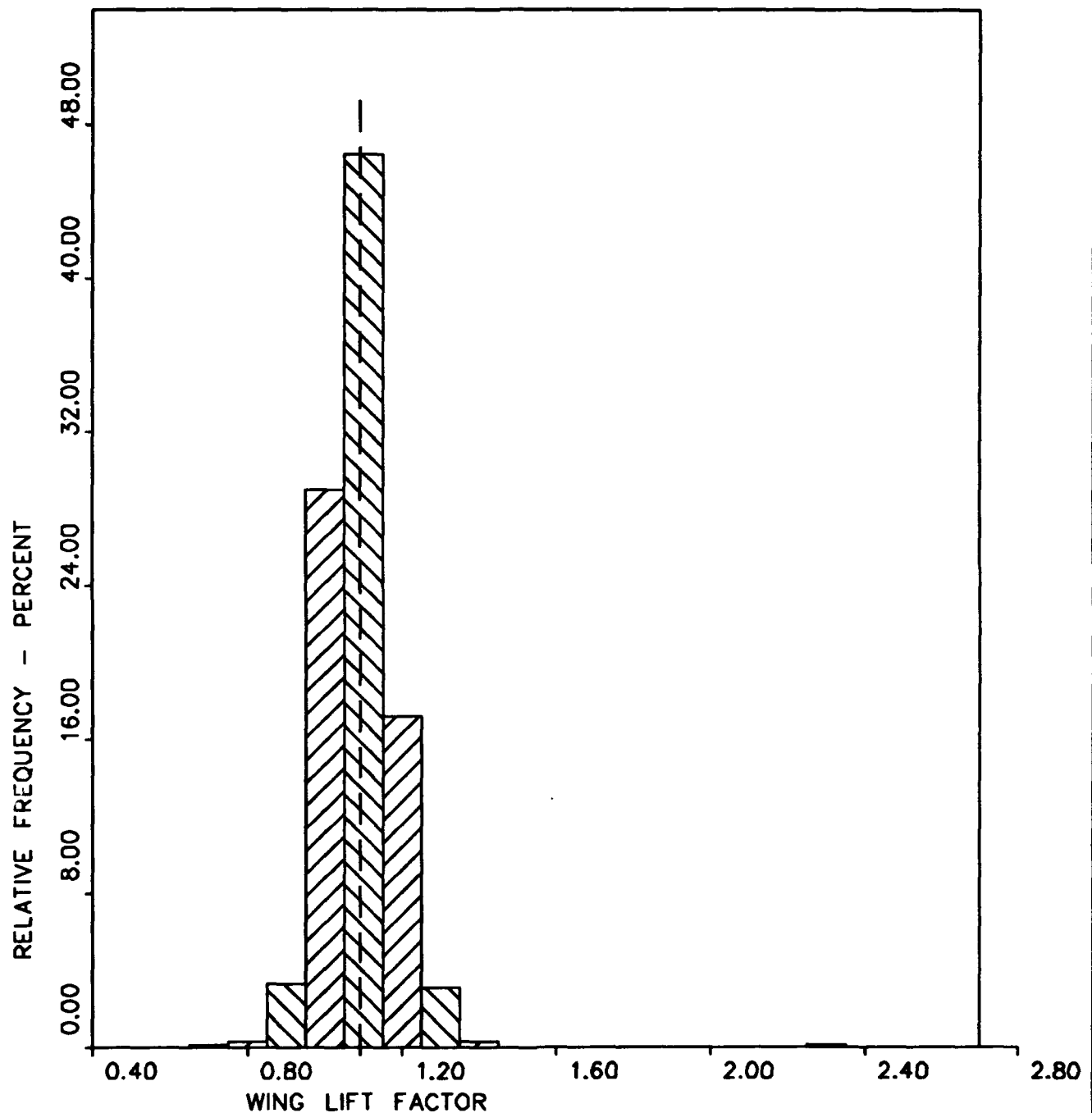


FIGURE R-17      FREQUENCY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 1.09

S= 0.10

CURVE FITTED - PEARSON TYPE III

A3= 2.75

A4= 35.05

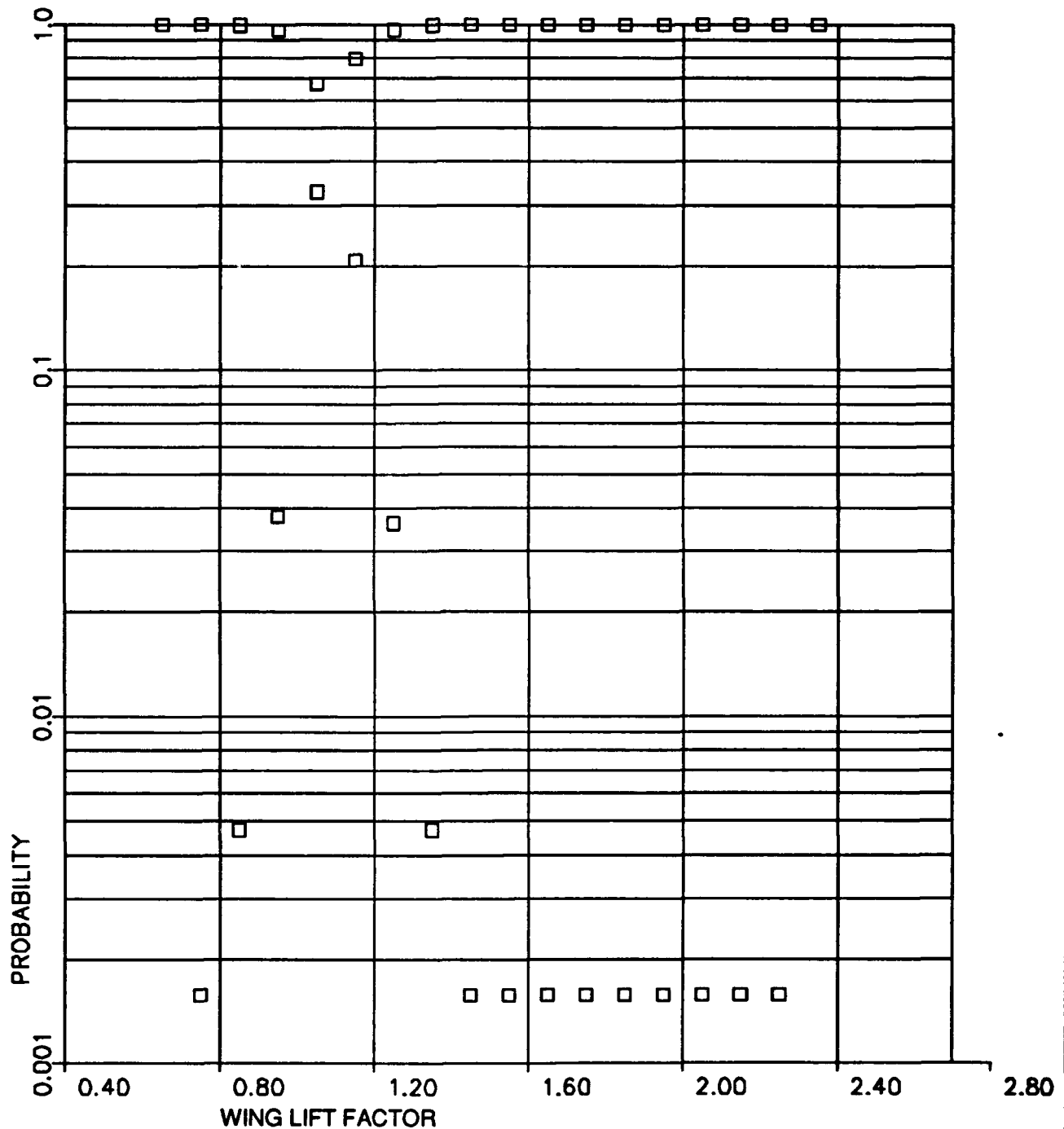


FIGURE R-18 PROBABILITY DISTRIBUTION OF WING LIFT  
FACTOR AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 120

 $\bar{X}$ = 1.09

S= 0.12

A3= 2.66

A4= 19.74

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

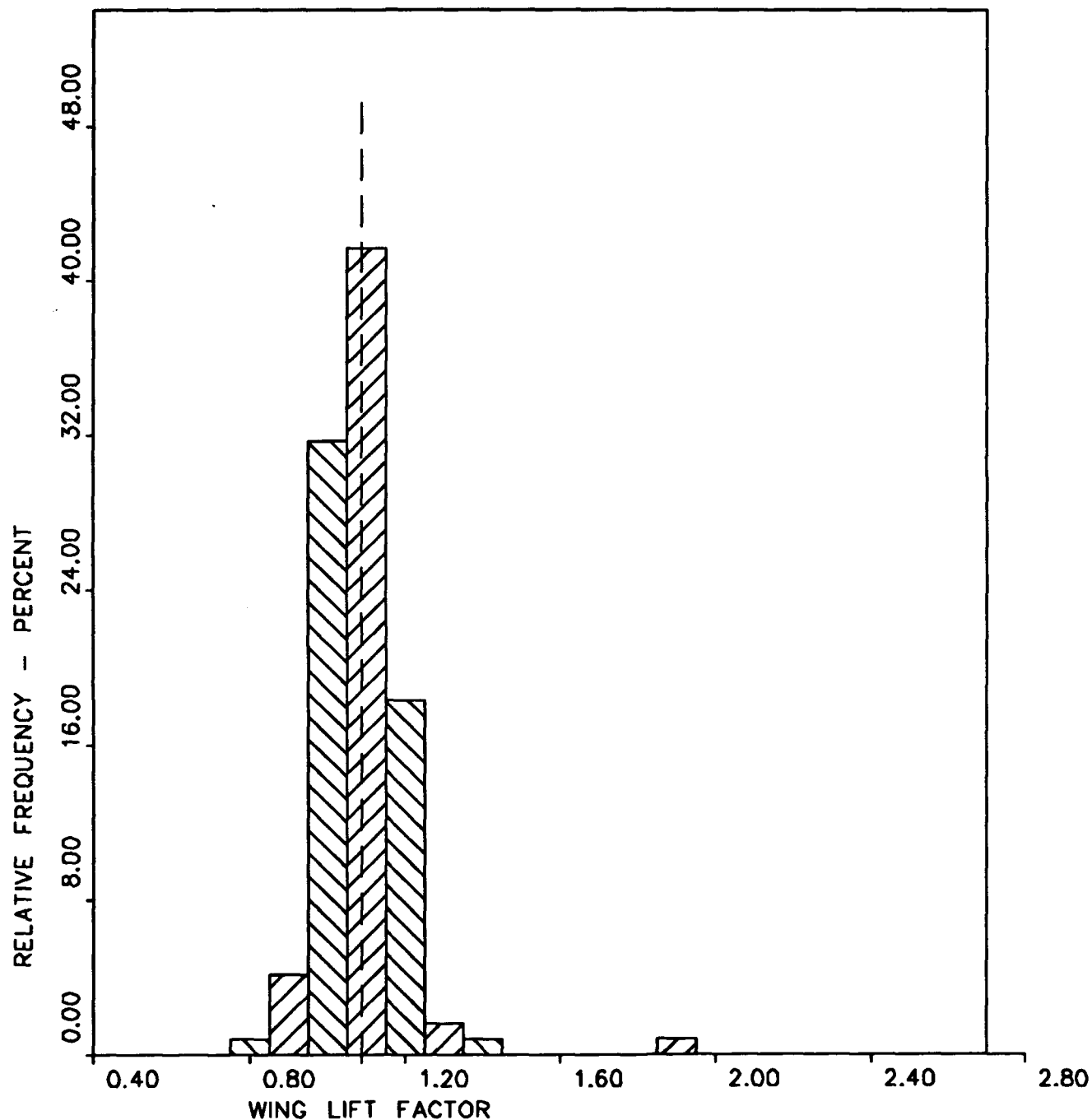


FIGURE R-19 FREQUENCY DISTRIBUTION OF WING LIFT FACTOR AT FREE FLIGHT

MODEL TA-4

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 120

 $\bar{X}$ = 1.09

S= 0.12

A3= 2.66

A4= 19.74

CURVE FITTED - PEARSON TYPE III

\*FREE FLIGHT\* IS THE CONDITION WHERE THE HOOK ENGAGES THE  
ARRESTMENT CABLE BEFORE THE WHEELS MAKE DECK CONTACT

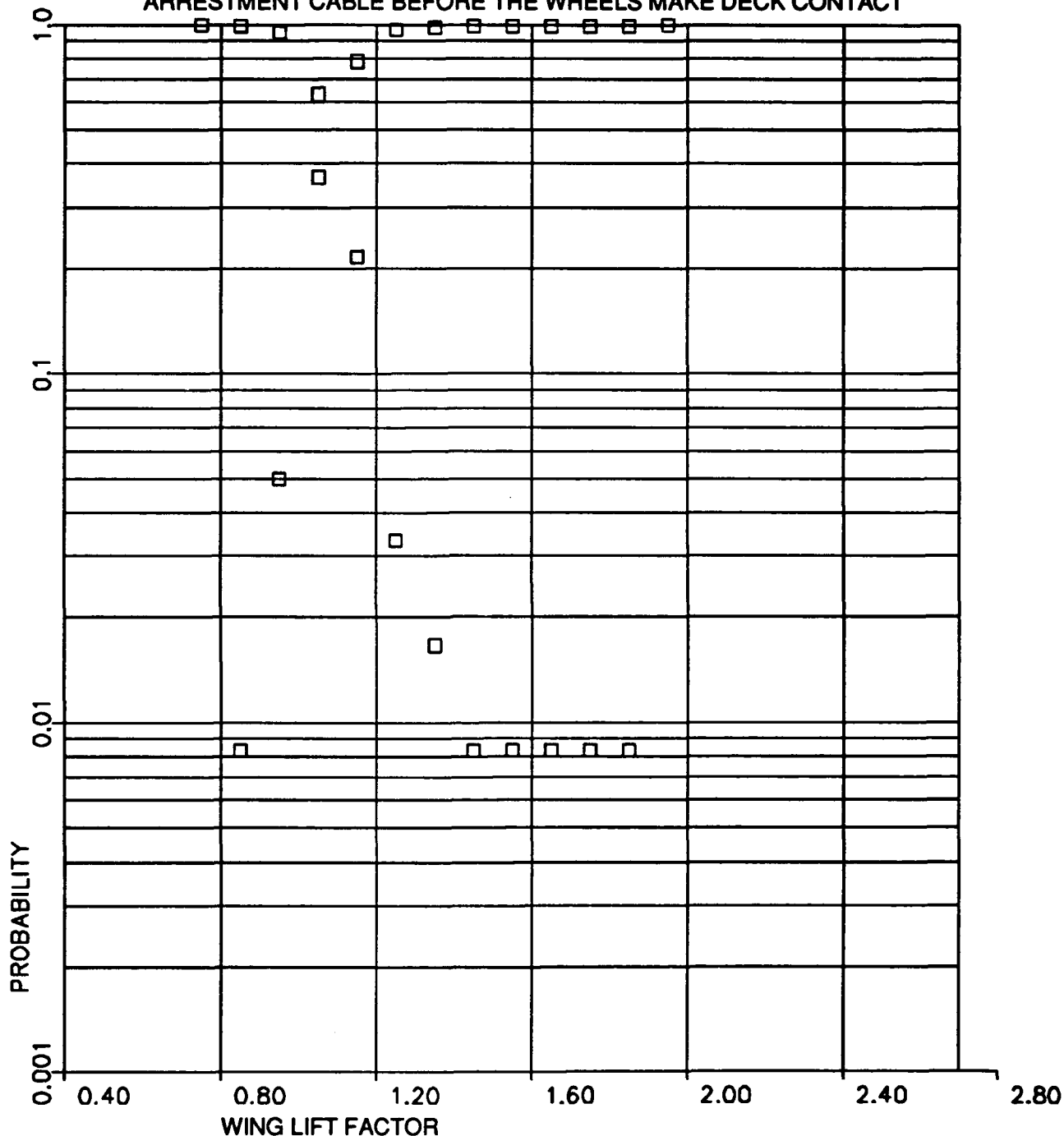


FIGURE R-20 PROBABILITY DISTRIBUTION OF  
WING LIFT FACTOR AT FREE FLIGHT

MODEL TA-4      AIRCRAFT      USS ENTERPRISE      (CVN-65)  
DAY LANDINGS  
FRESNEL LENS      SETTING= 3.50 DEGREES  
N= 617       $\bar{X}$ = 14.16 DEGREES      A3=-0.01  
                 S= 1.48 DEGREES      A4= 3.23

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

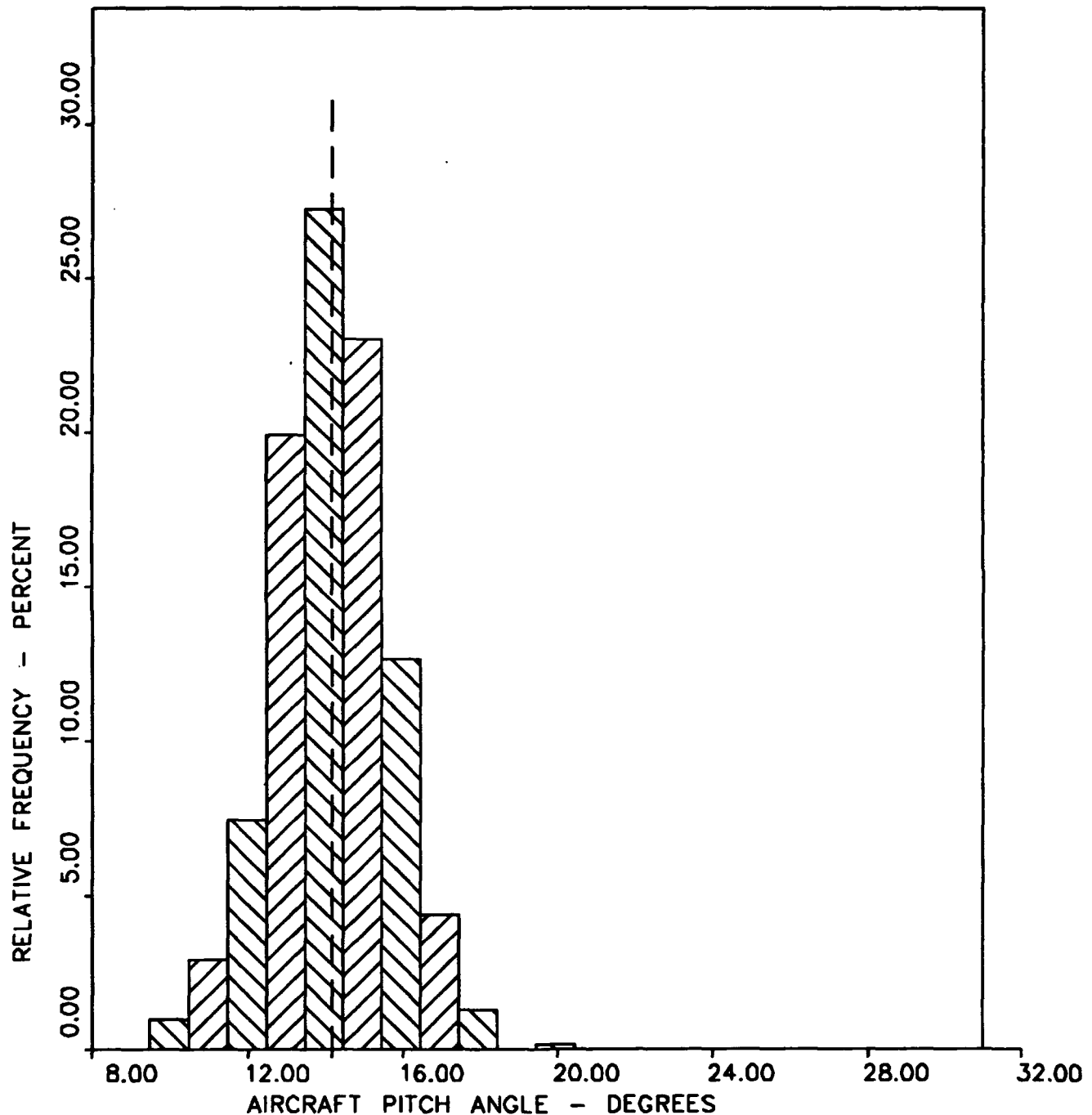


FIGURE R-21      FREQUENCY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT THE RAMP

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 617

$\bar{X}$ = 14.16 DEGREES

S= 1.48 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE

MEASURED FROM CARRIER DECK TO FRL

A3=-0.01

A4= 3.23

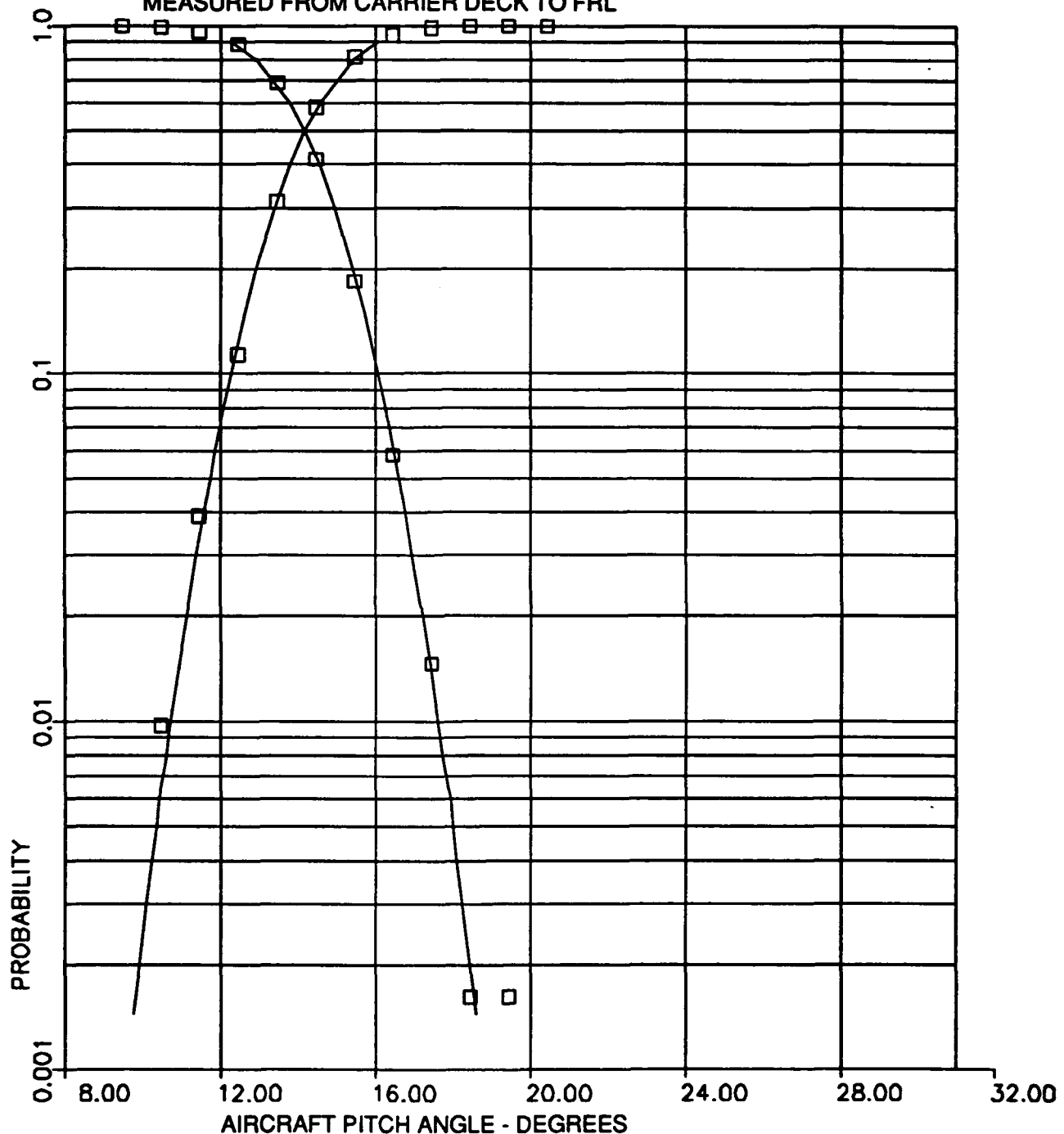


FIGURE R-22 PROBABILITY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT THE RAMP

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

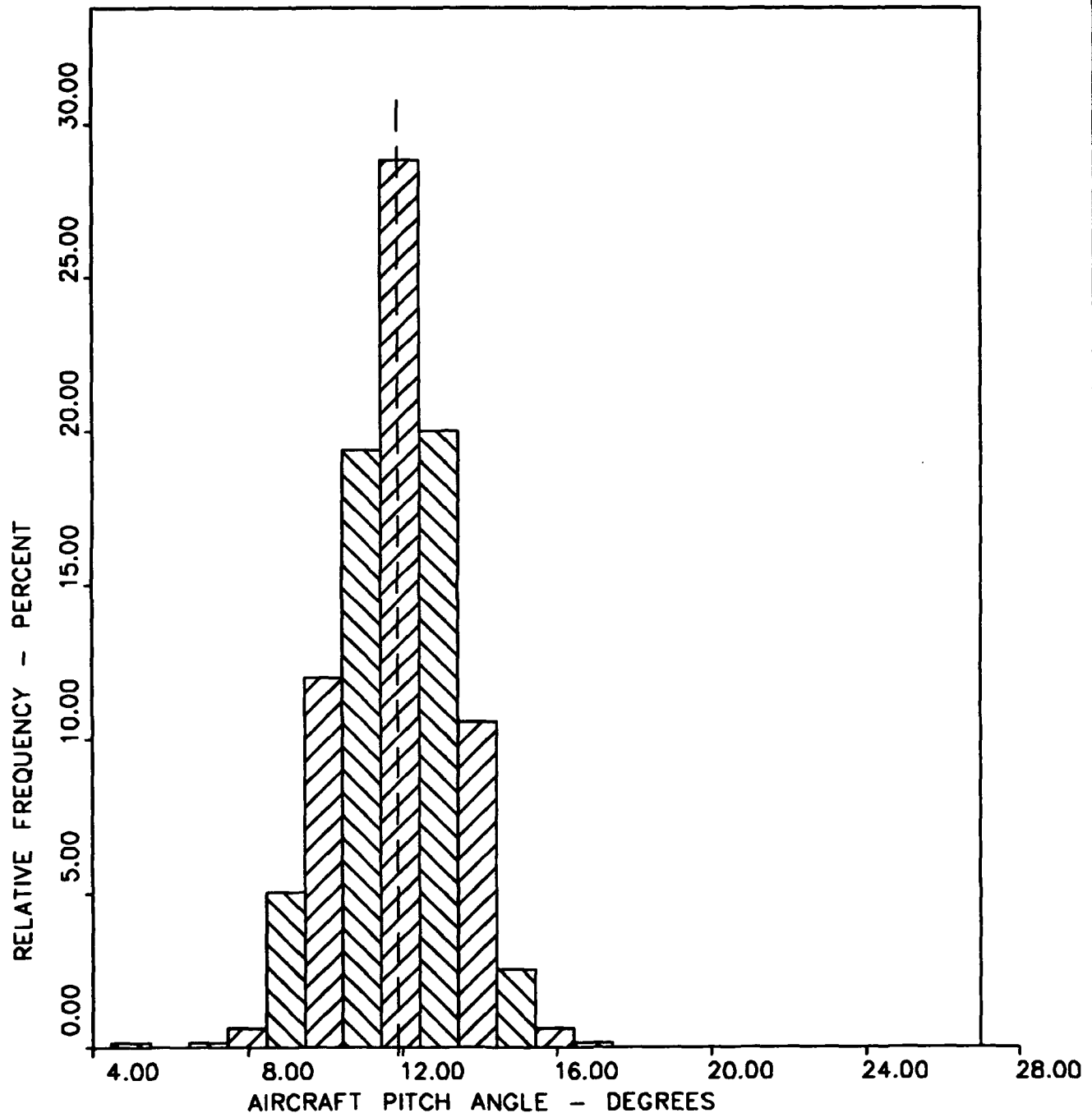
USS ENTERPRISE

(CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES  
N= 635  $\bar{X}$ = 11.86 DEGREES  
S= 1.50 DEGREES

A3=-0.14

A4= 3.61

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRLFIGURE R-23 FREQUENCY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN



MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635  $\bar{X}$ = 11.86 DEGREES

S= 1.50 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

A3=-0.14

A4= 3.61

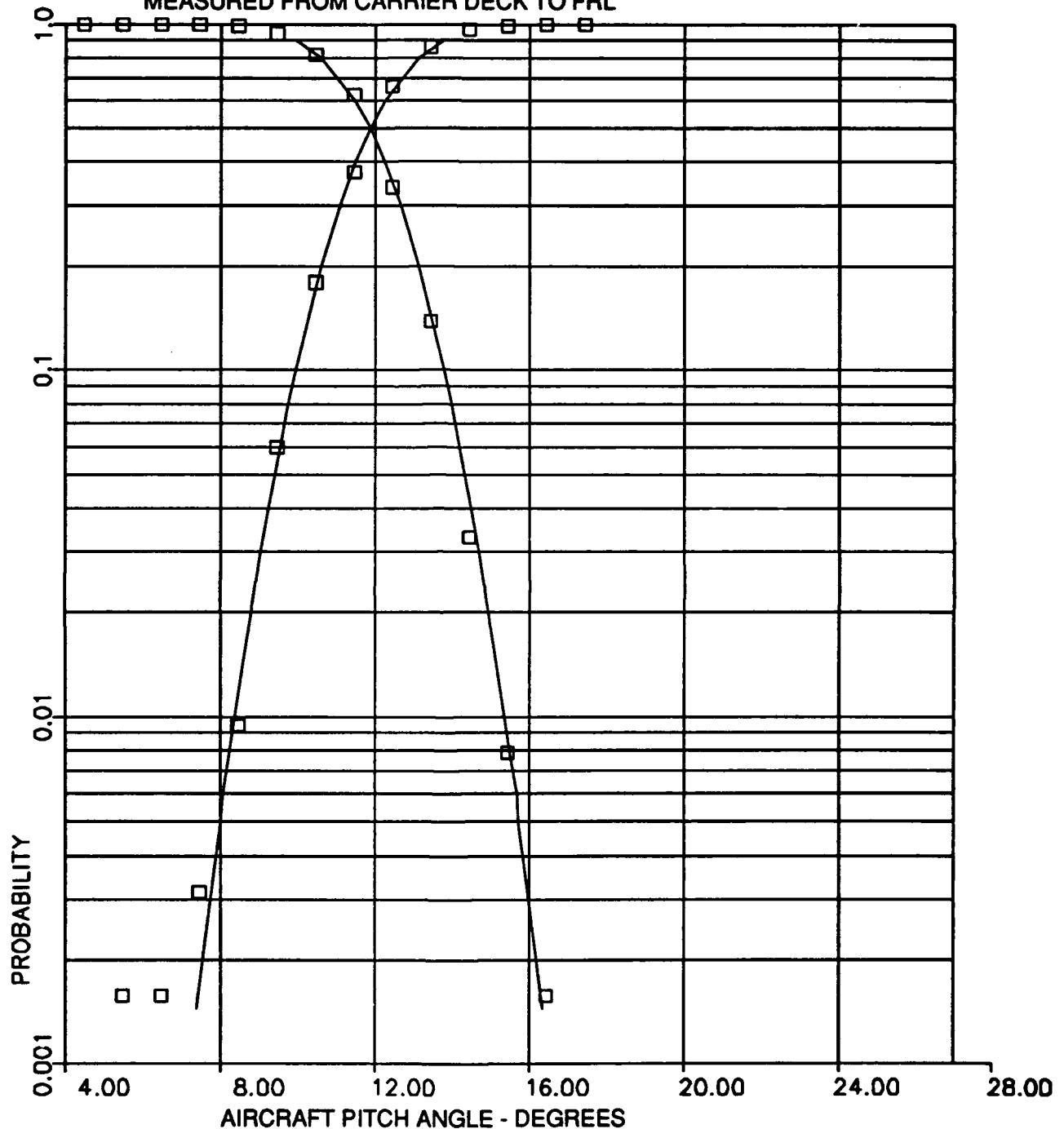


FIGURE R-24 PROBABILITY DISTRIBUTION OF AIRCRAFT PITCH  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 120

AIRCRAFT

USS ENTERPRISE

(CVN-65)

SETTING= 3.50 DEGREES  
 $\bar{X}$ = 12.29 DEGREES  
S= 1.49 DEGREES

A3= 0.35  
A4= 3.53

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

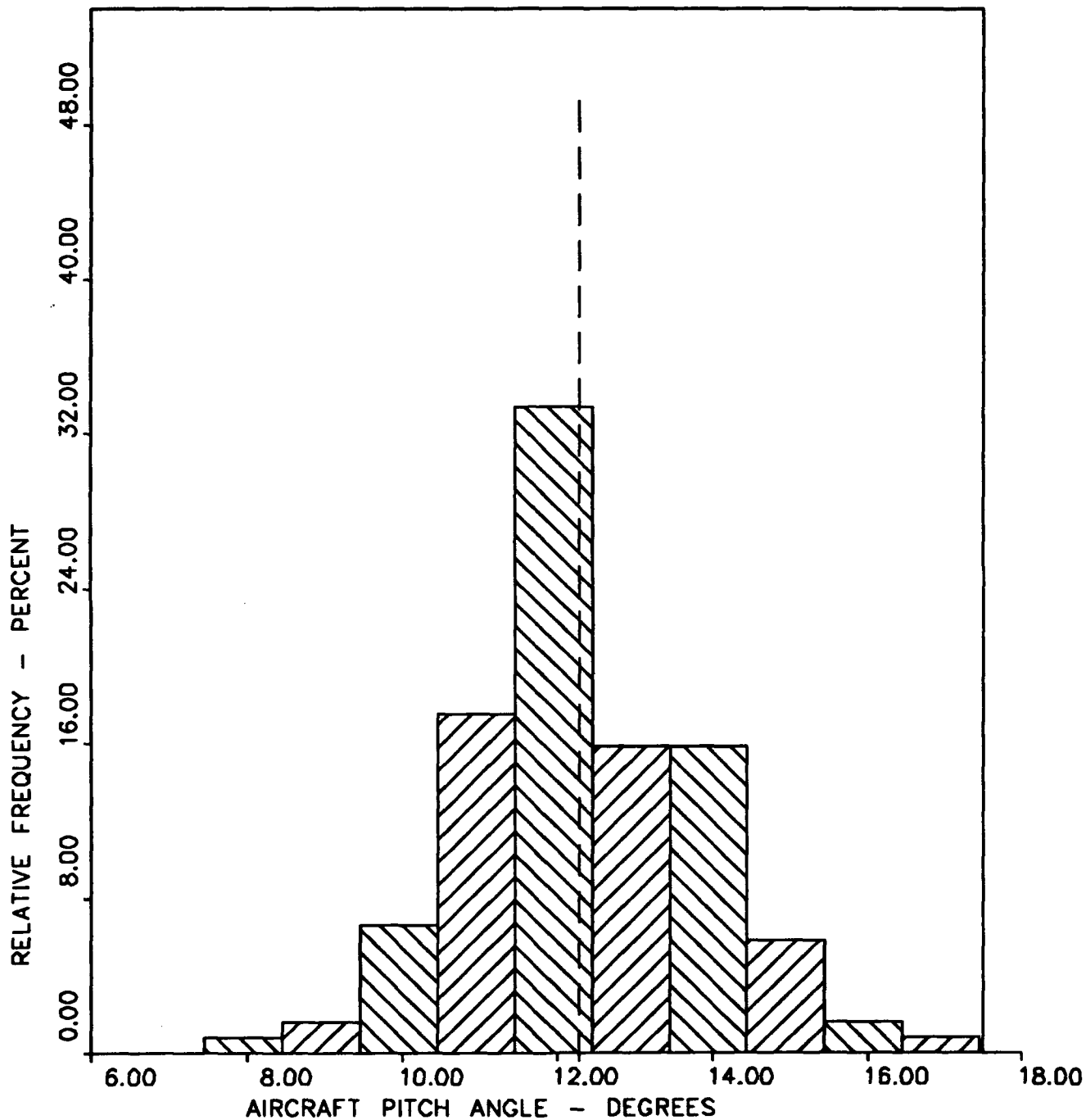


FIGURE R-25 FREQUENCY DISTRIBUTION OF  
AIRCRAFT PITCH ANGLE AT FREE FLIGHT

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 120

 $\bar{X}$ = 12.29 DEGREES

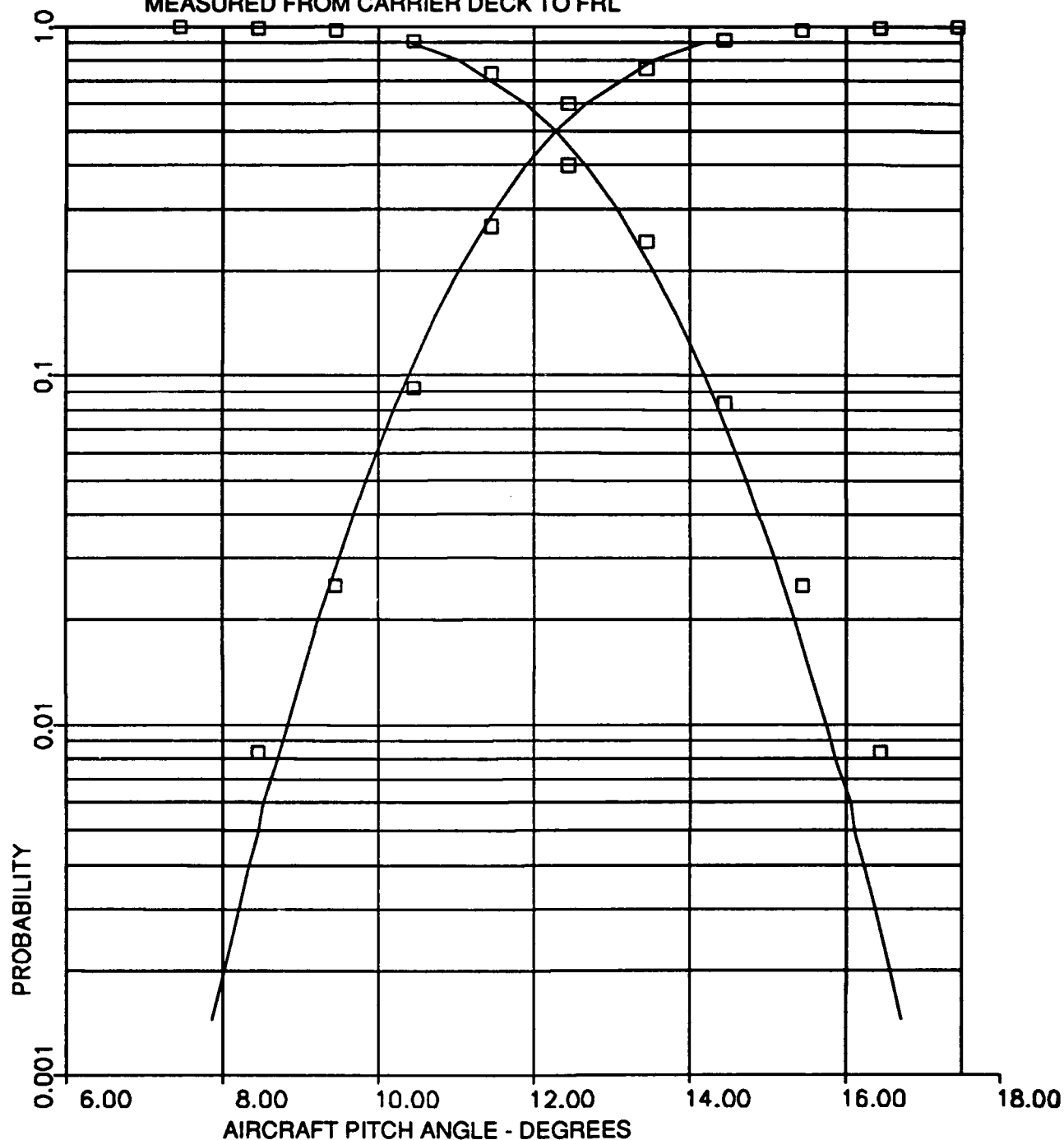
S= 1.49 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM CARRIER DECK TO FRL

A3= 0.35

A4= 3.53

FIGURE R-26 PROBABILITY DISTRIBUTION OF AIRCRAFT  
PITCH ANGLE AT FREE FLIGHT

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 617

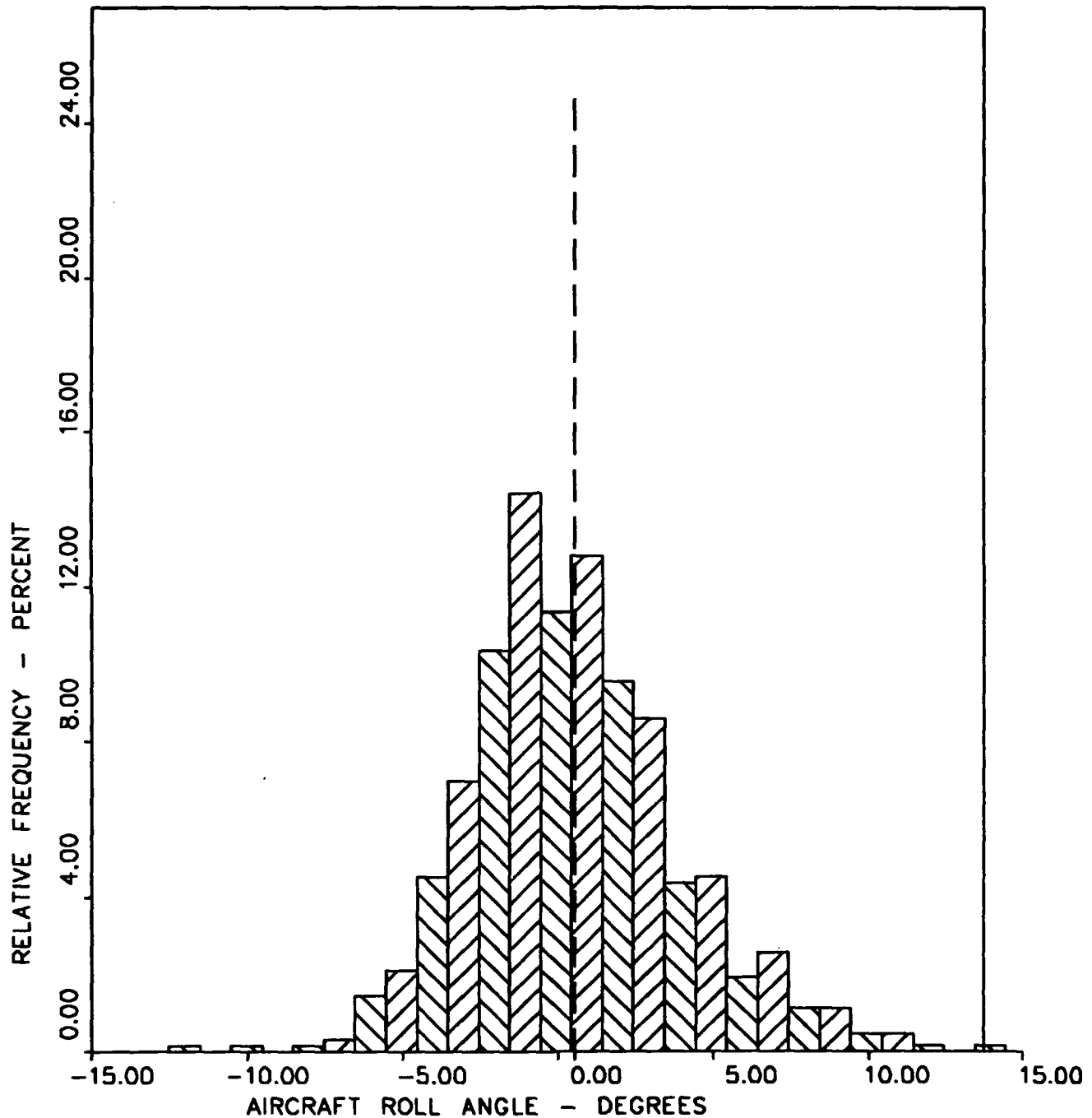
 $\bar{X}$ = 0.56 DEGREES

S= 3.40 DEGREES

A3= 0.46

A4= 3.87

POSITIVE VALUES INDICATE STARBOARD WING DOWN

FIGURE R-27 FREQUENCY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL TA-4

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 617

 $\bar{X}$ = 0.56 DEGREES

S= 3.40 DEGREES

A3= 0.46

A4= 3.87

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

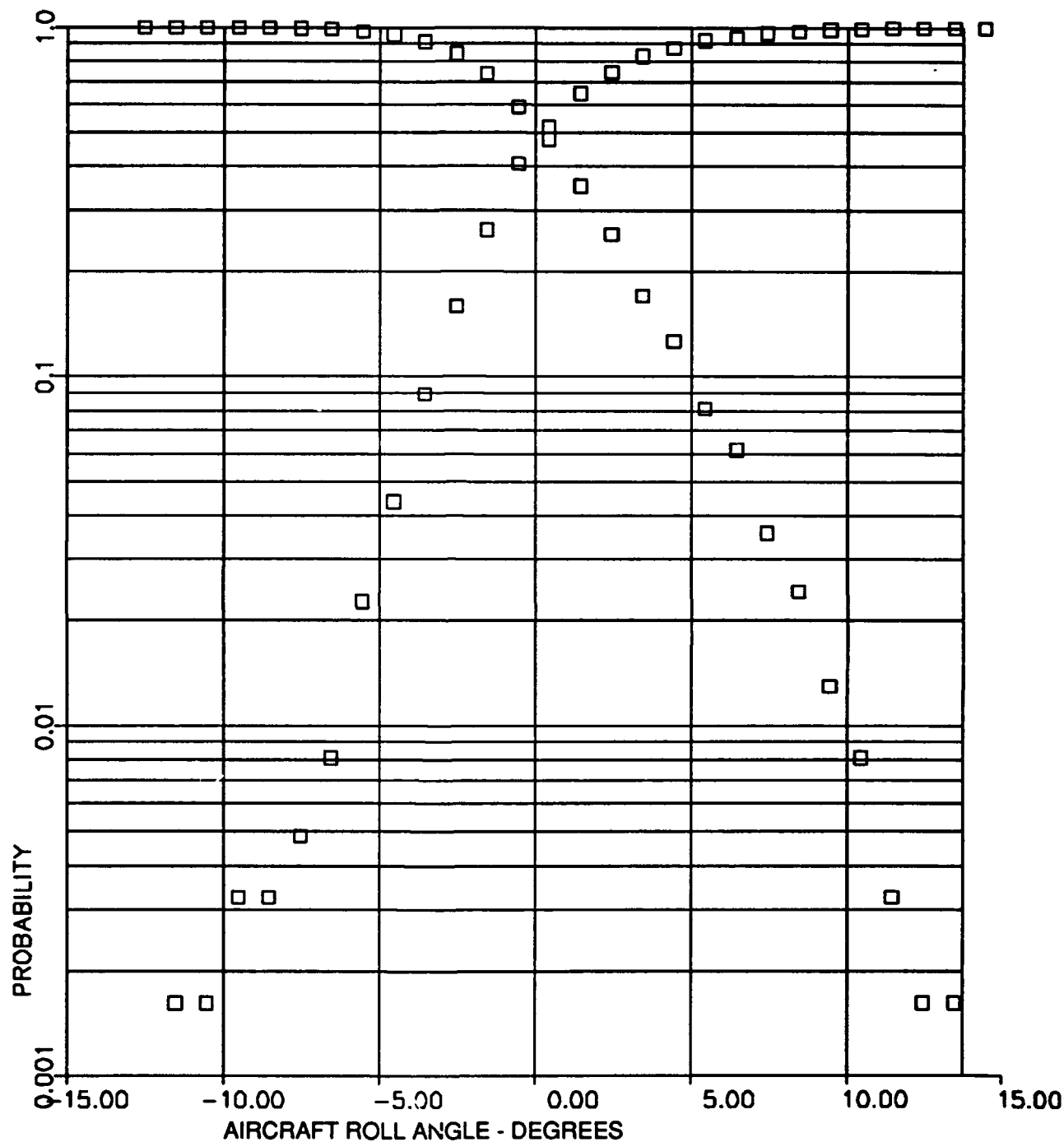


FIGURE R-28 PROBABILITY DISTRIBUTION OF  
AIRCRAFT ROLL ANGLE AT THE RAMP

MODEL TA-4 AIRCRAFT USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ =-0.89 DEGREES

S= 2.83 DEGREES

A3= 0.29

A4= 3.94

POSITIVE VALUES INDICATE STARBOARD WING DOWN

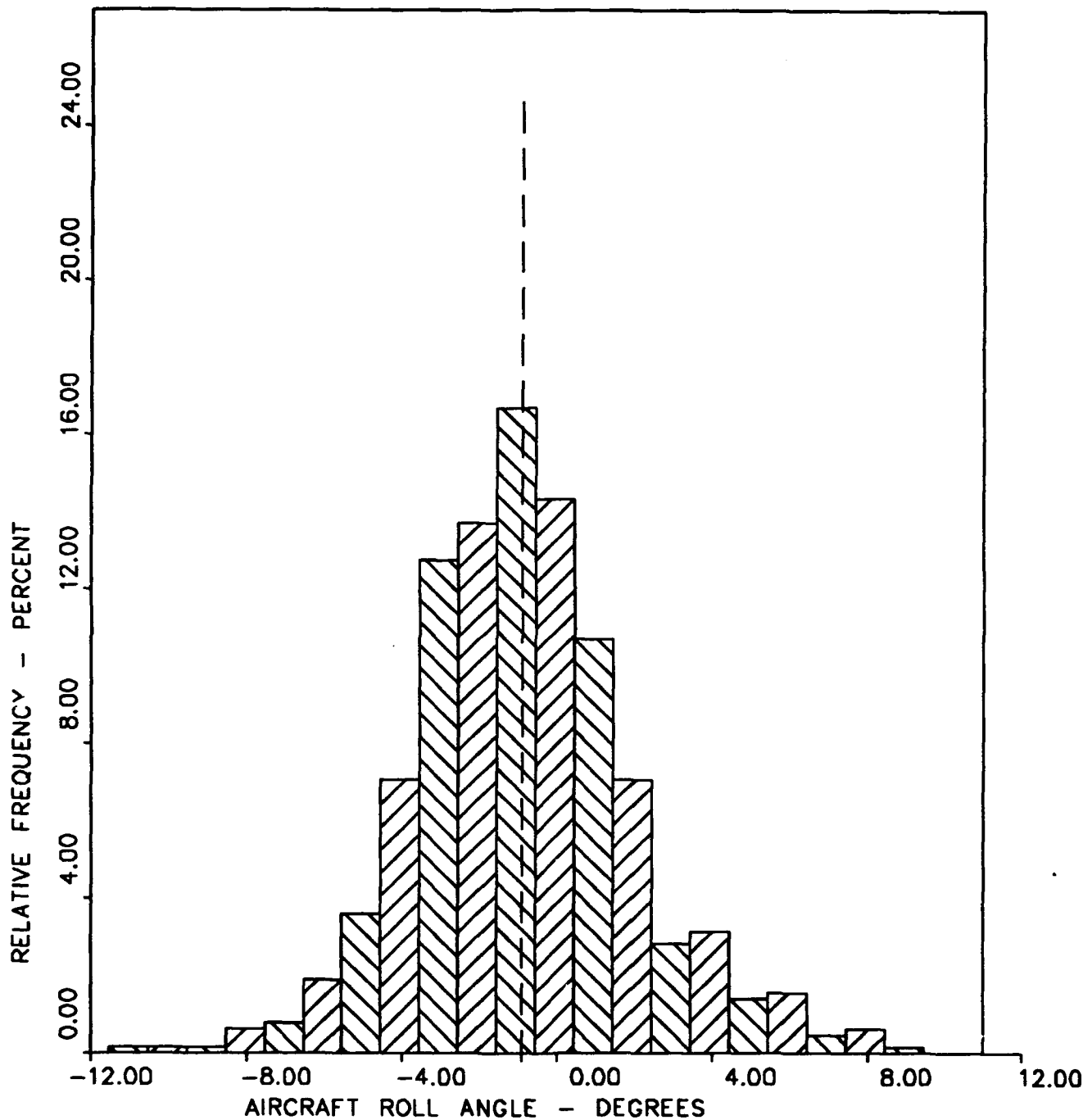


FIGURE R-29 FREQUENCY DISTRIBUTION OF AIRCRAFT ROLL ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X} = -0.89$  DEGREES

S= 2.83 DEGREES

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE STARBOARD WING DOWN

A3= 0.29

A4= 3.94

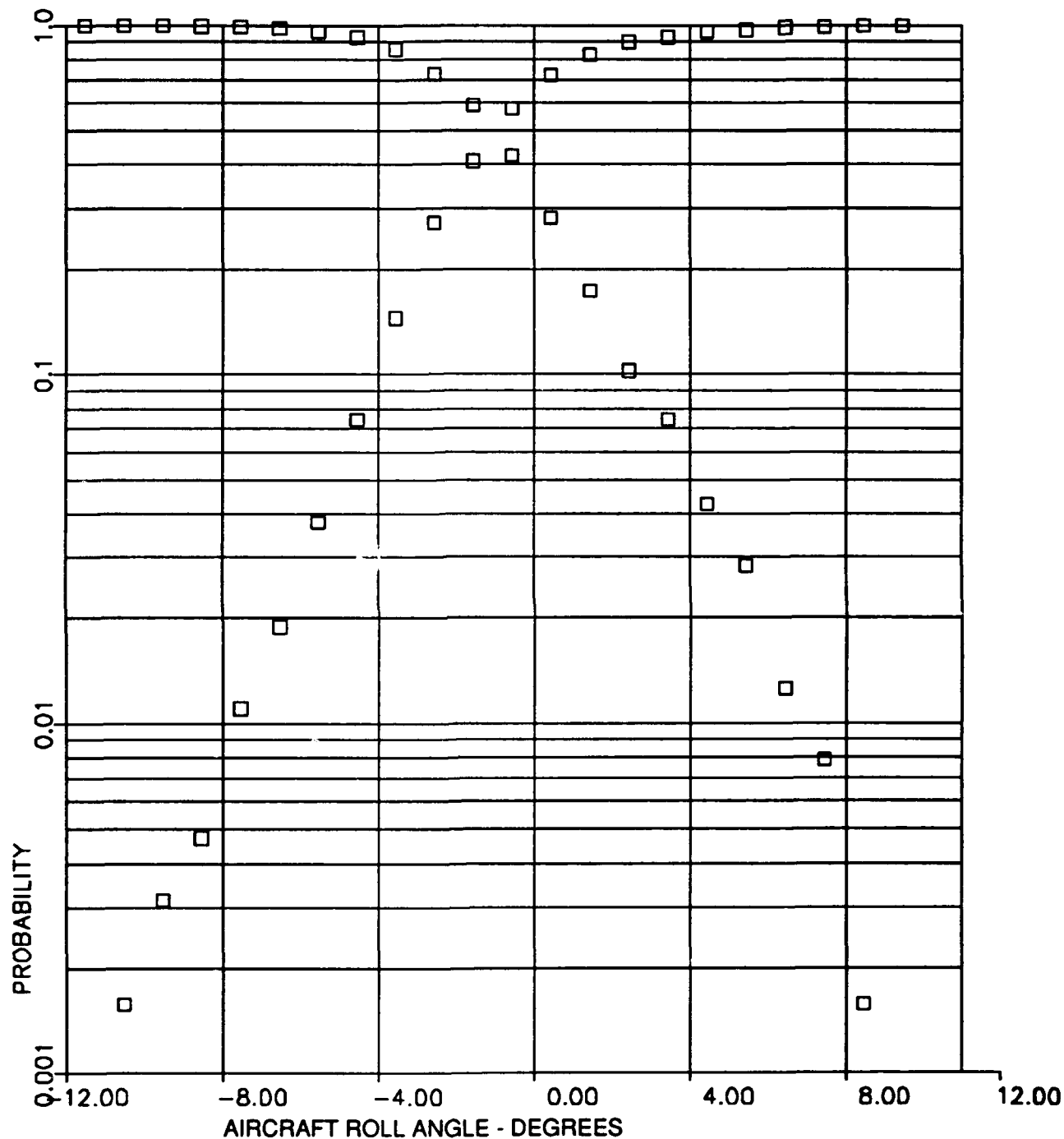


FIGURE R-30 PROBABILITY DISTRIBUTION OF AIRCRAFT ROLL  
ANGLE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 120

 $\bar{X} = -0.59$  DEGREES

S= 2.30 DEGREES

A3= 0.27

A4= 3.65

POSITIVE VALUES INDICATE STARBOARD WING DOWN

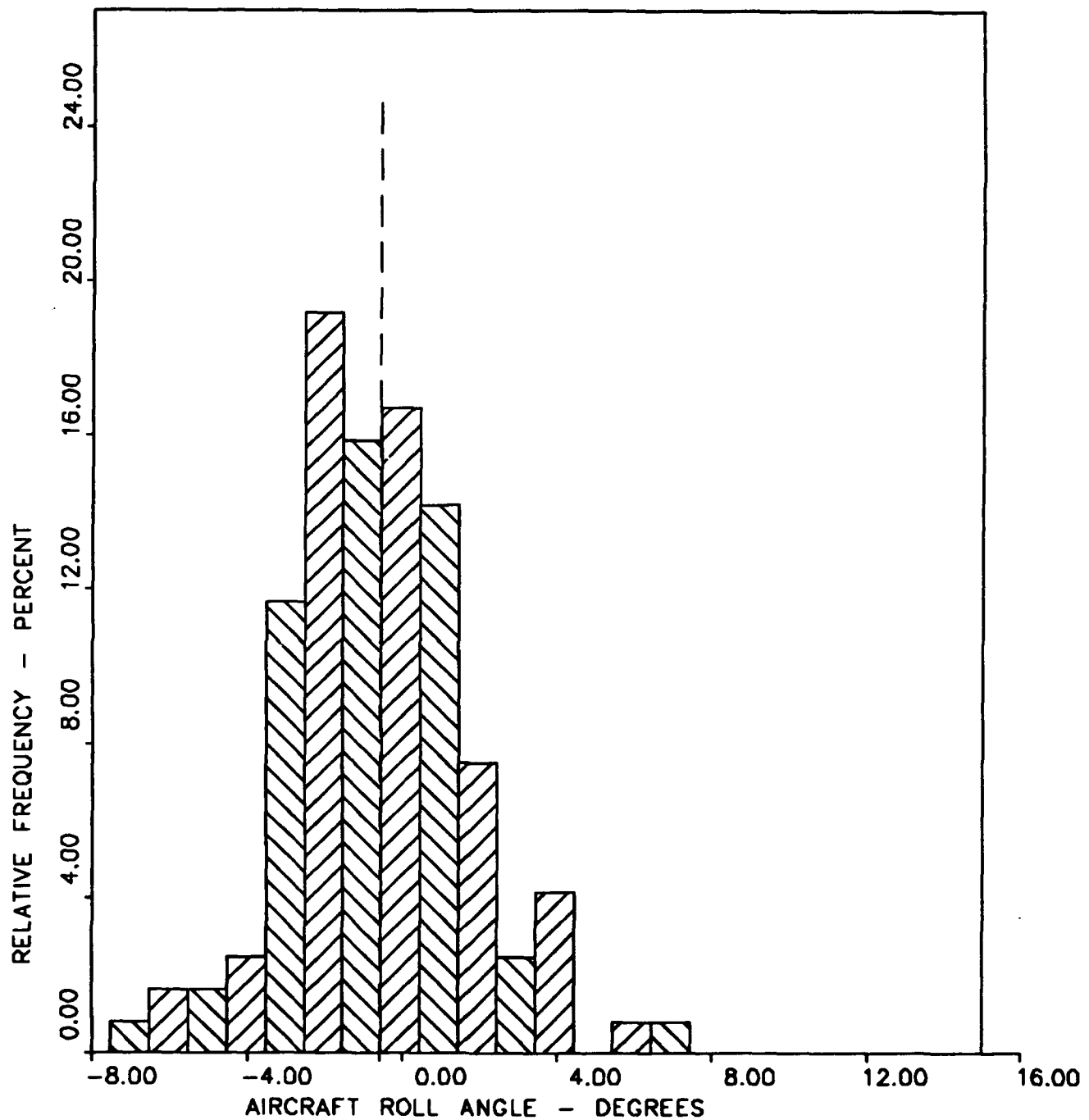


FIGURE R-31 FREQUENCY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT



MODEL TA-4

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 120

 $\bar{X} = -0.59$  DEGREES

S= 2.30 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

A3= 0.27

A4= 3.65

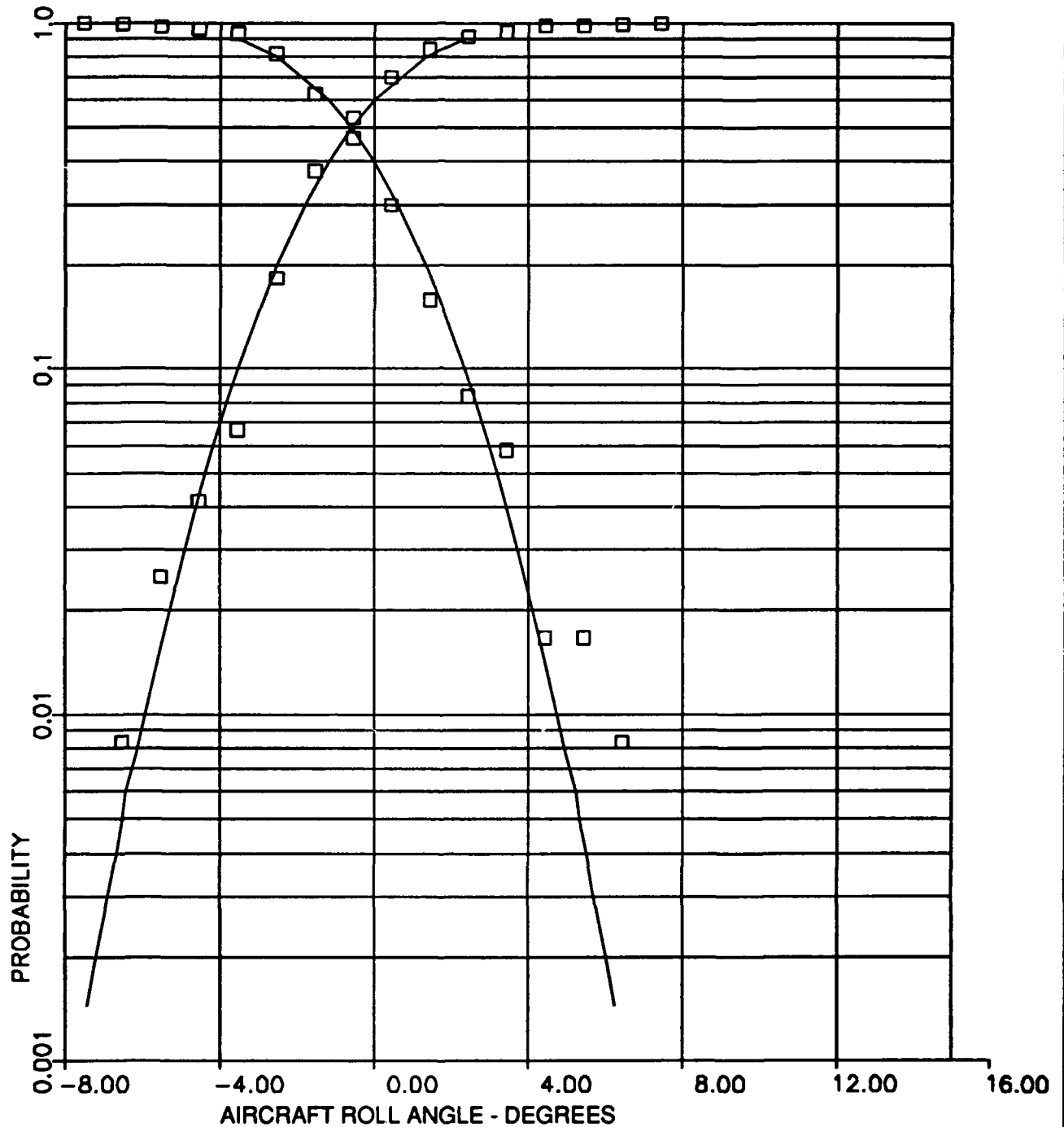


FIGURE R-32 PROBABILITY DISTRIBUTION OF AIRCRAFT  
ROLL ANGLE AT FREE FLIGHT

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 253.63 FEET

S= 42.11 FEET

A3= 0.01

A4= 2.68

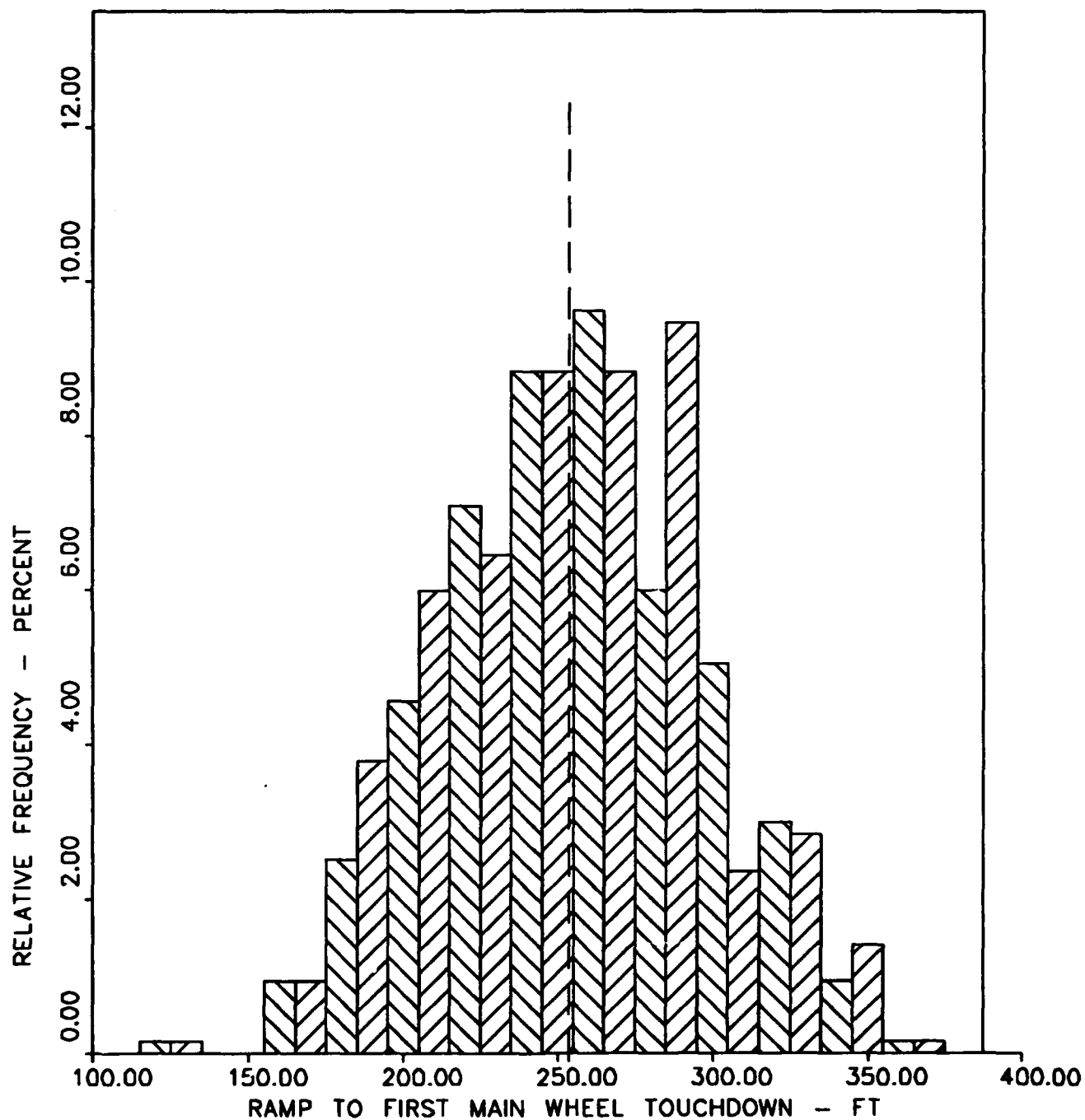


FIGURE R-33 FREQUENCY DISTRIBUTION OF DISTANCE FROM RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL TA-4

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 253.63 FEET

S= 42.11 FEET

CURVE FITTED - NORMAL

A3= 0.01

A4= 2.68

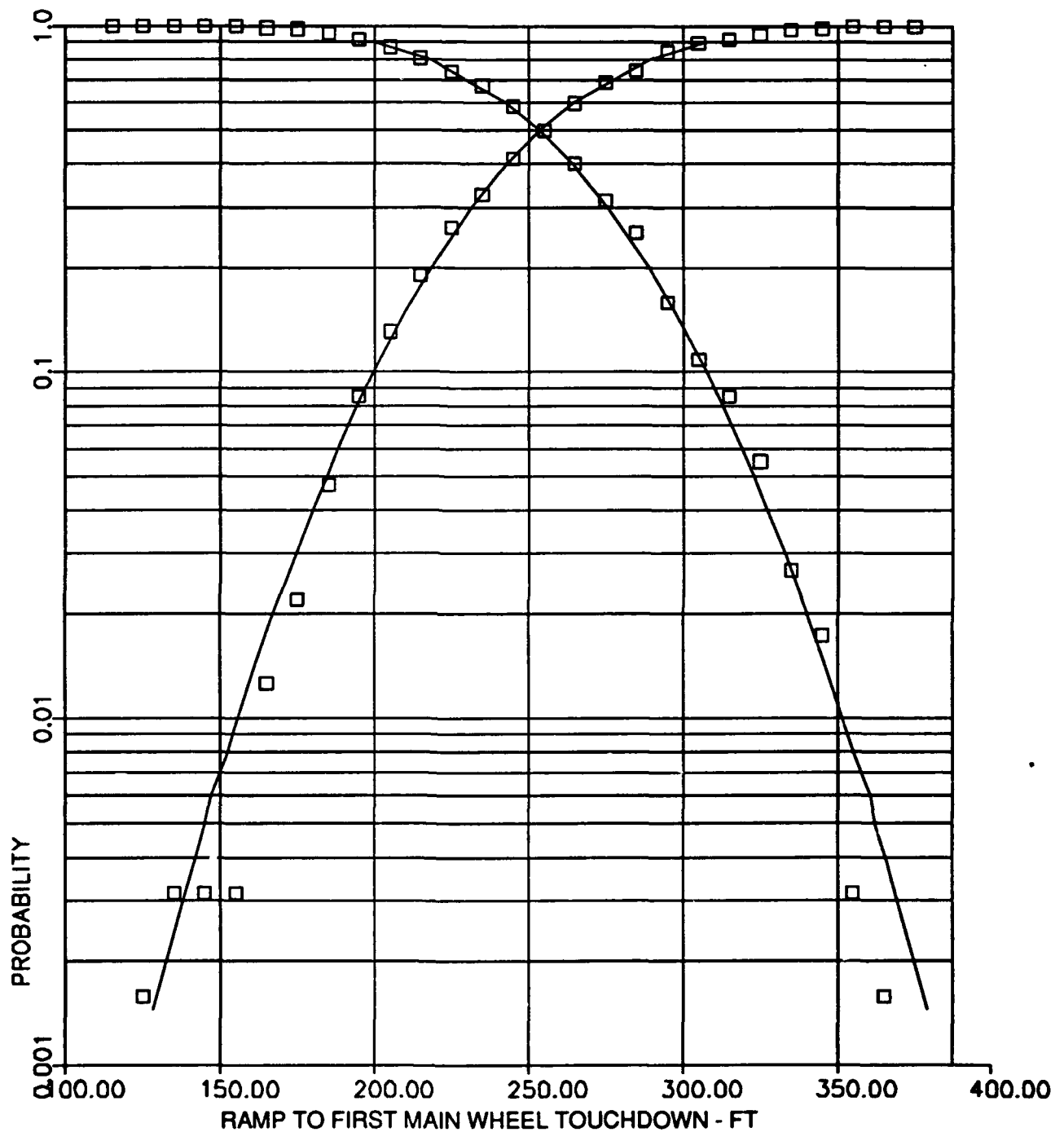


FIGURE R-34 PROBABILITY DISTRIBUTION OF DISTANCE FROM  
RAMP TO FIRST MAIN WHEEL TOUCHDOWN POINT

MODEL TA-4      AIRCRAFT      USS ENTERPRISE      (CVN-65)  
DAY LANDINGS  
FRESNEL LENS SETTING= 3.50 DEGREES  
N= 635       $\bar{X}$ =-9.16 FEET      A3=-0.33  
                 S= 6.13 FEET      A4= 4.58

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

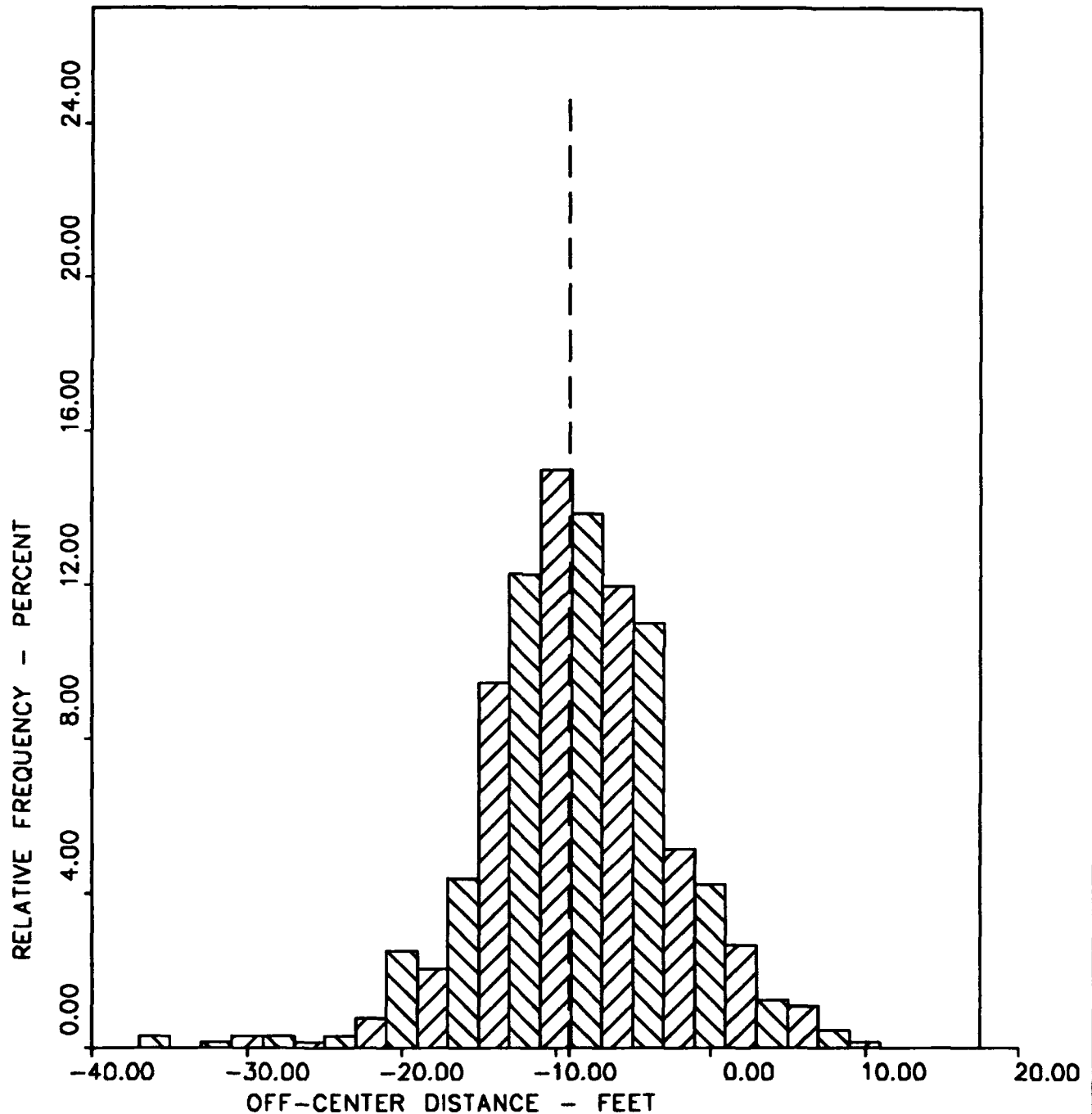


FIGURE R-35      FREQUENCY DISTRIBUTION OF AIRCRAFT CENTERLINE  
OFF-CNTR DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL TA-4

AIRCRAFT

USS ENTERPRISE (CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X} = -9.16$  FEET

S= 6.13 FEET

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK CENTERLINE

A3=-0.33

A4= 4.58

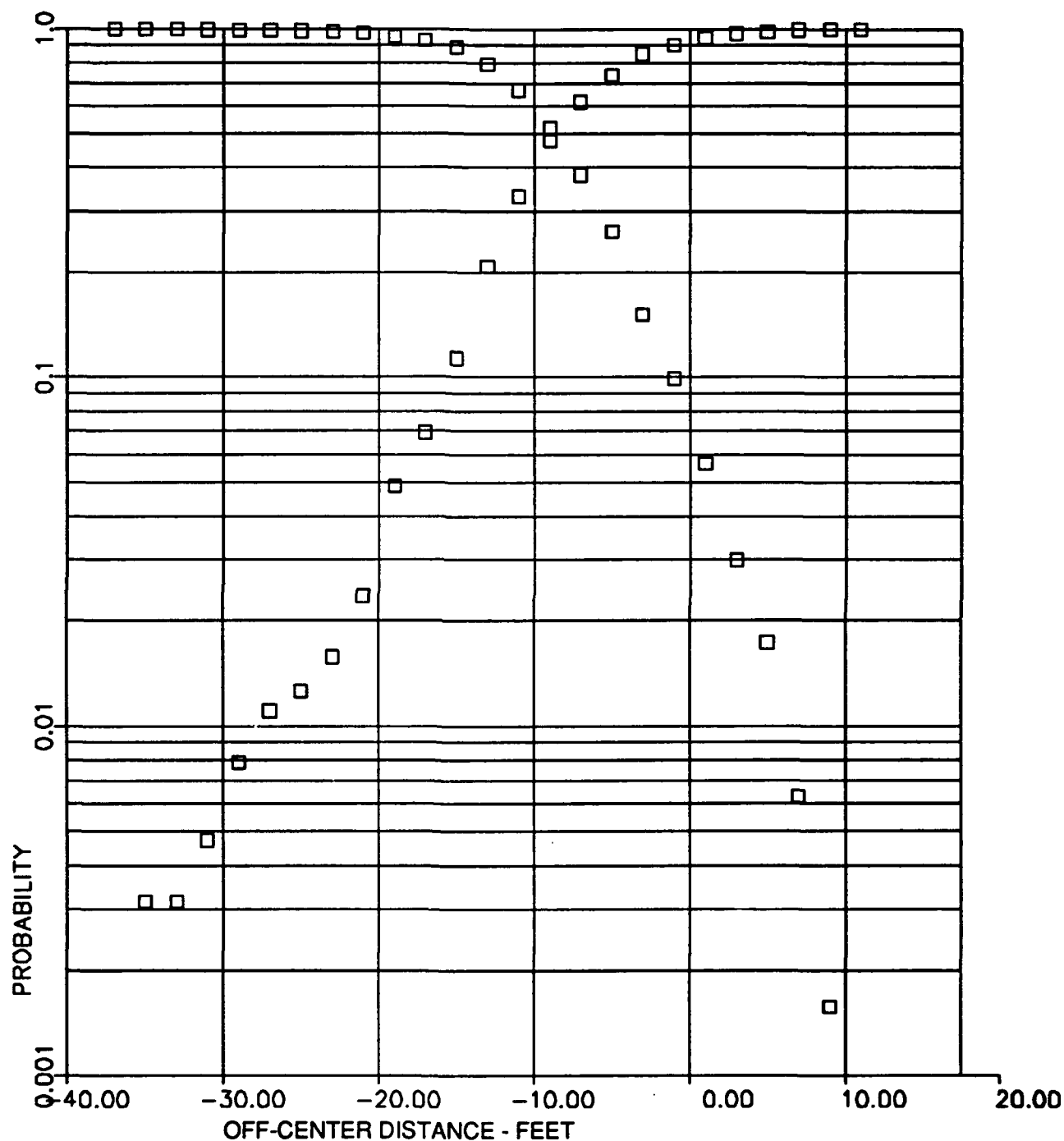


FIGURE R-36 PROBABILITY DISTRIBUTION OF AIRCRAFT OFF-CENTER DISTANCE AT 1ST MAIN WHEEL TOUCHDOWN

MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 452  
SETTING= 3.50 DEGREES  
 $\bar{X}$ = 2.80  
S= 0.88

AIRCRAFT

USS ENTERPRISE

(CVN-65)

A3=-0.40

A4= 2.50

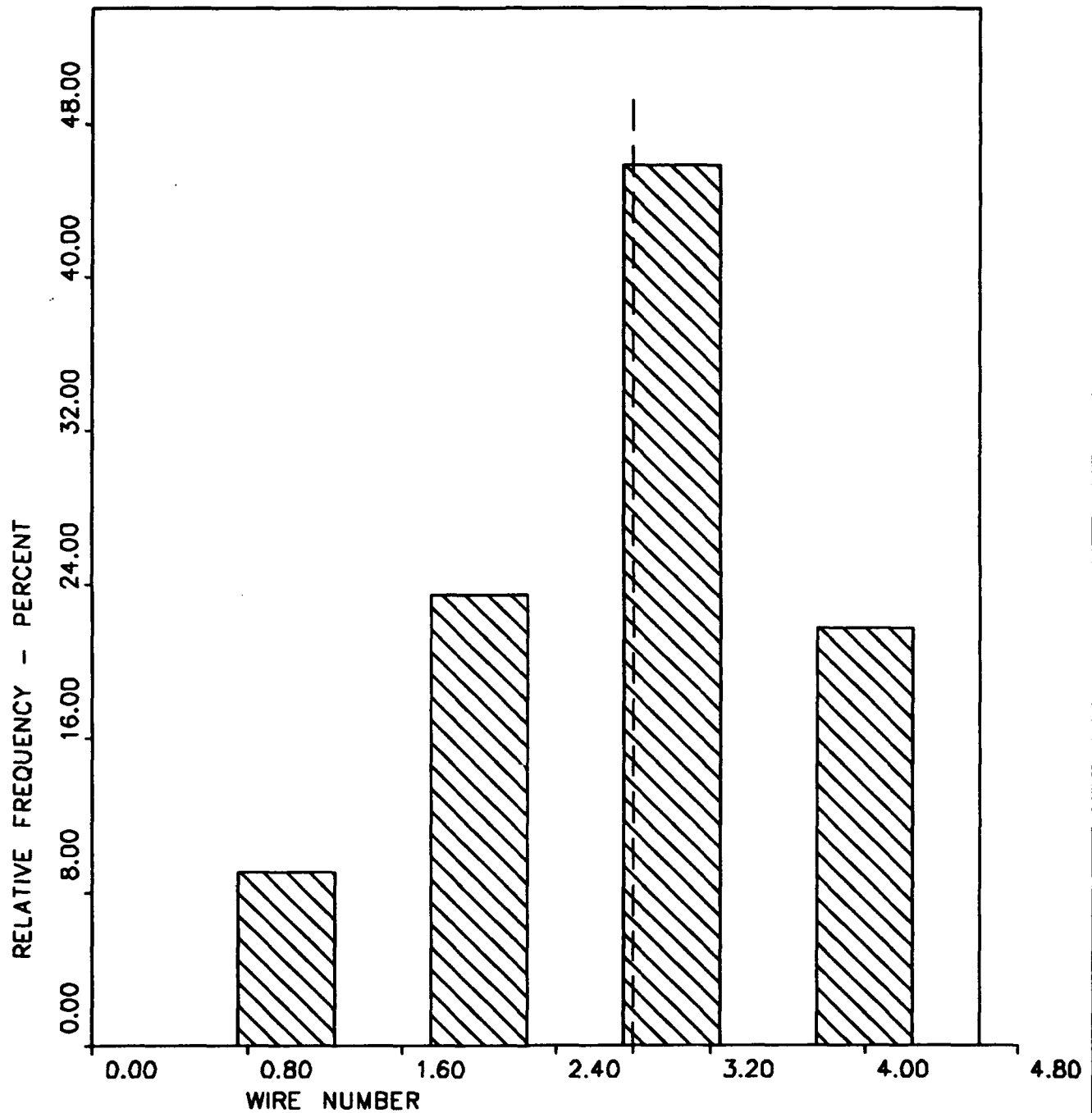


FIGURE R-37 FREQUENCY DISTRIBUTION OF  
ARRESTMENT WIRE NUMBER ENGAGED

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 2.84 DEGREES

S= 0.72 DEGREES

A3= 0.11

A4= 3.41

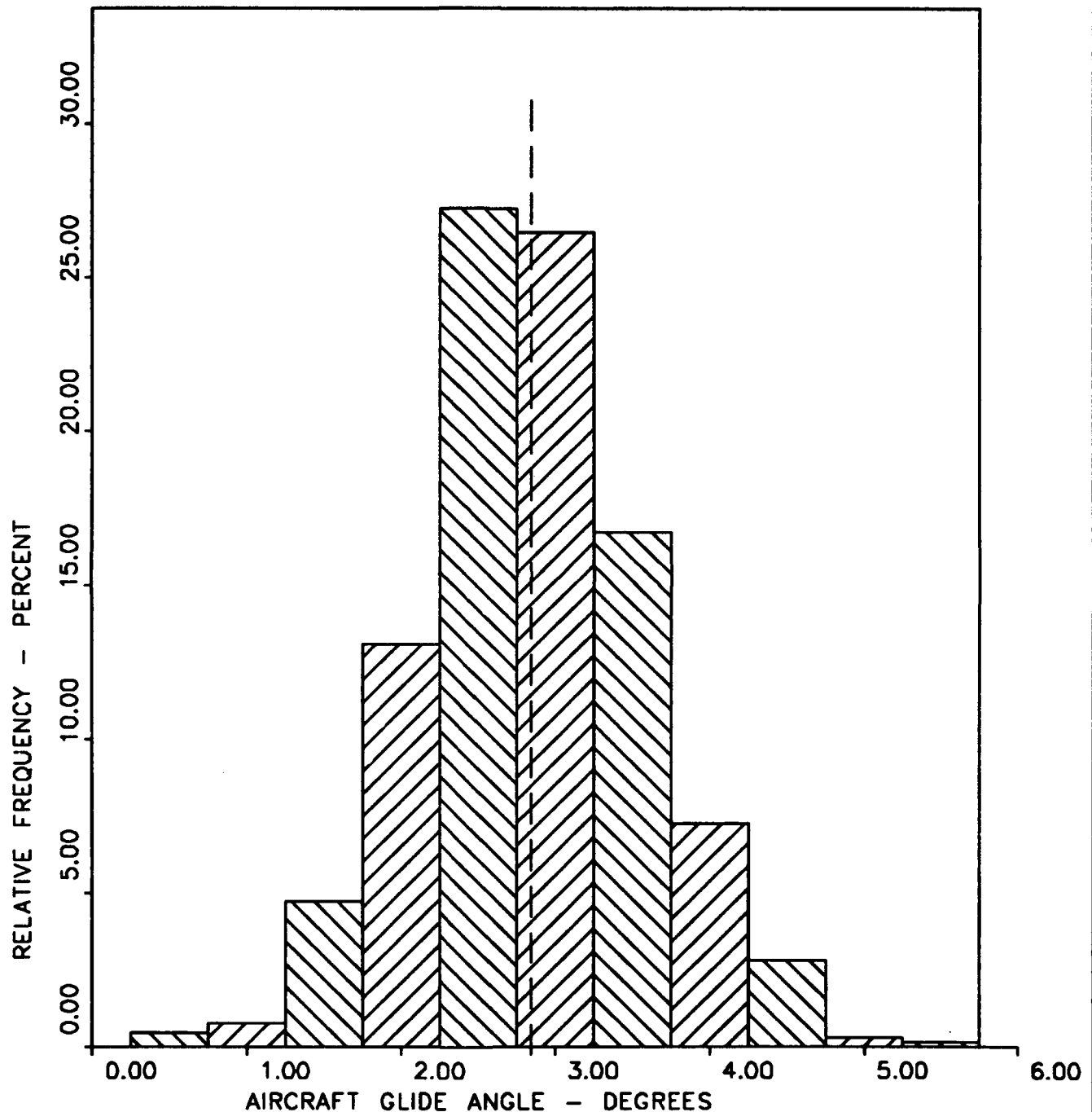


FIGURE R-38 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - INSTANTANEOUS METHOD

MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 617

AIRCRAFT

USS ENTERPRISE

(CVN-65)

SETTING= 3.50 DEGREES  
 $\bar{X}$ = 3.16 DEGREES  
S= 0.59 DEGREES

A3= 0.16

A4= 3.31

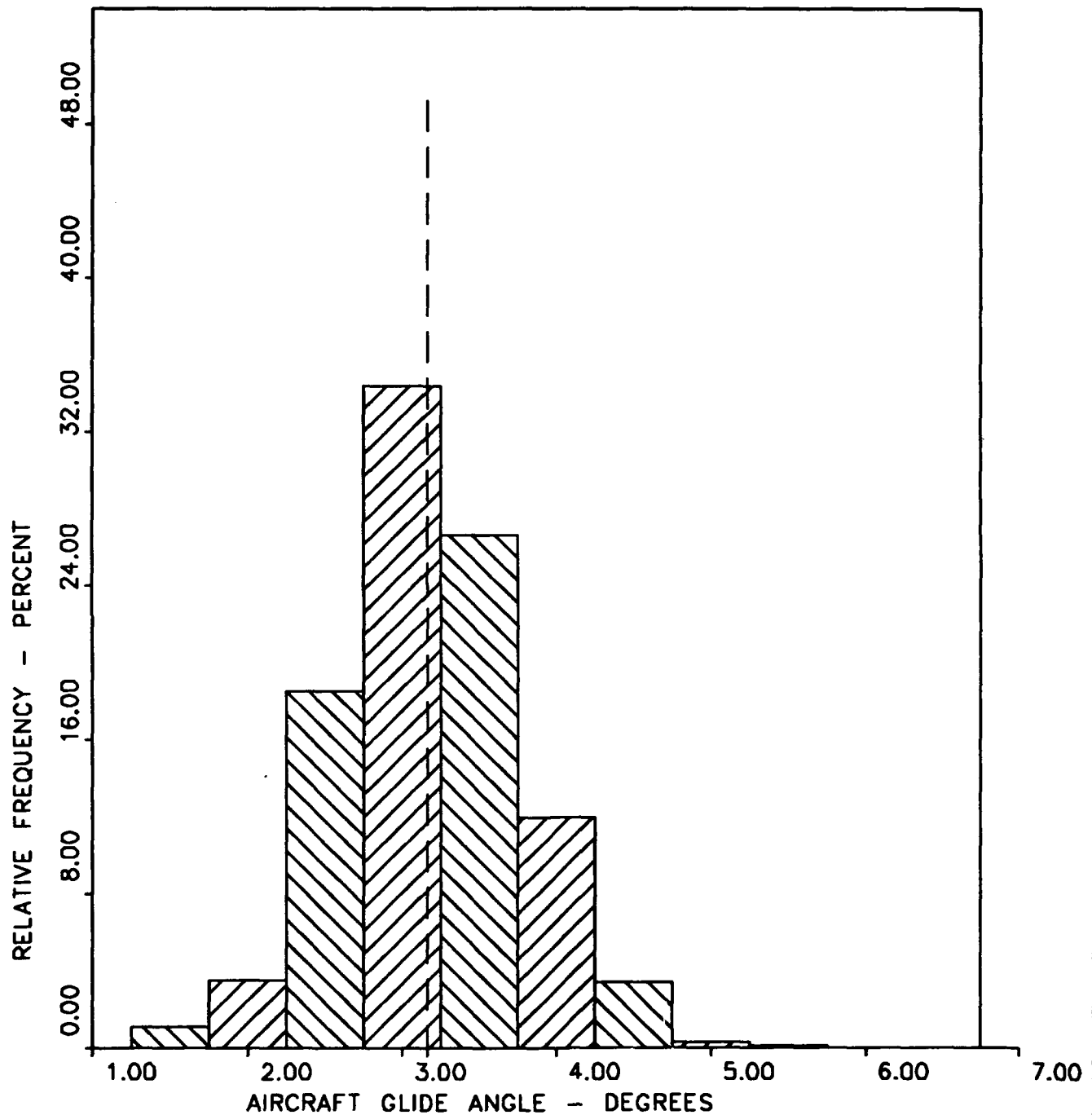


FIGURE R-39 FREQUENCY DISTRIBUTION OF AIRCRAFT  
GLIDE ANGLE - GEOMETRIC METHOD



MODEL TA-4      AIRCRAFT      USS ENTERPRISE      (CVN-65)  
DAY LANDINGS  
FRESNEL LENS      SETTING= 3.50 DEGREES  
N= 617       $\bar{X}$ = 12.24 FEET  
                 S= 3.21 FEET

A3= 0.61  
A4= 3.42

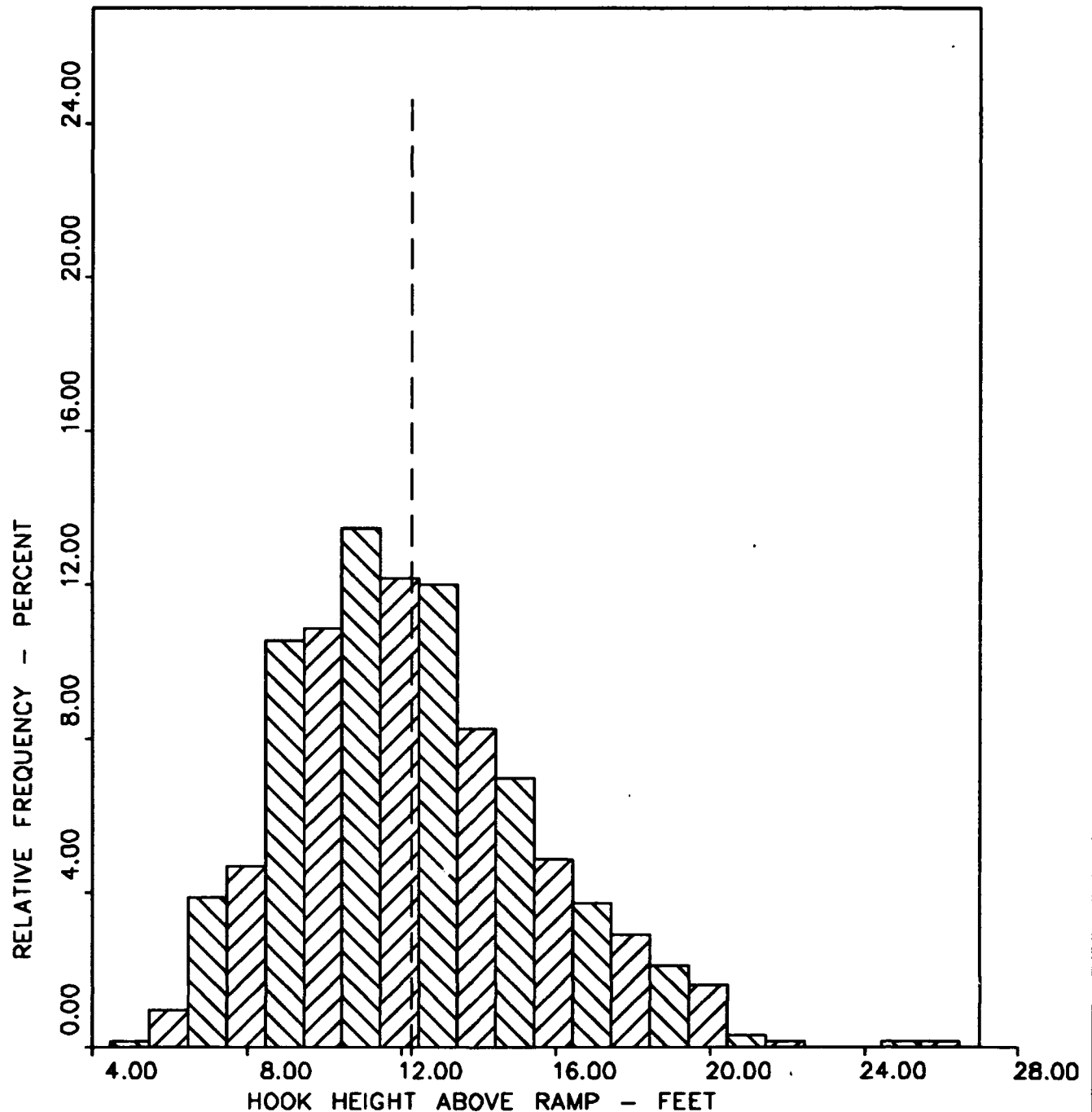


FIGURE R-40      FREQUENCY DISTRIBUTION OF AIRCRAFT  
ARRESTMENT HOOK HEIGHT ABOVE CARRIER RAMP

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 617

 $\bar{X}$ = 12.24 FEET

S= 3.21 FEET

CURVE FITTED - PEARSON TYPE III

A3= 0.61

A4= 3.42

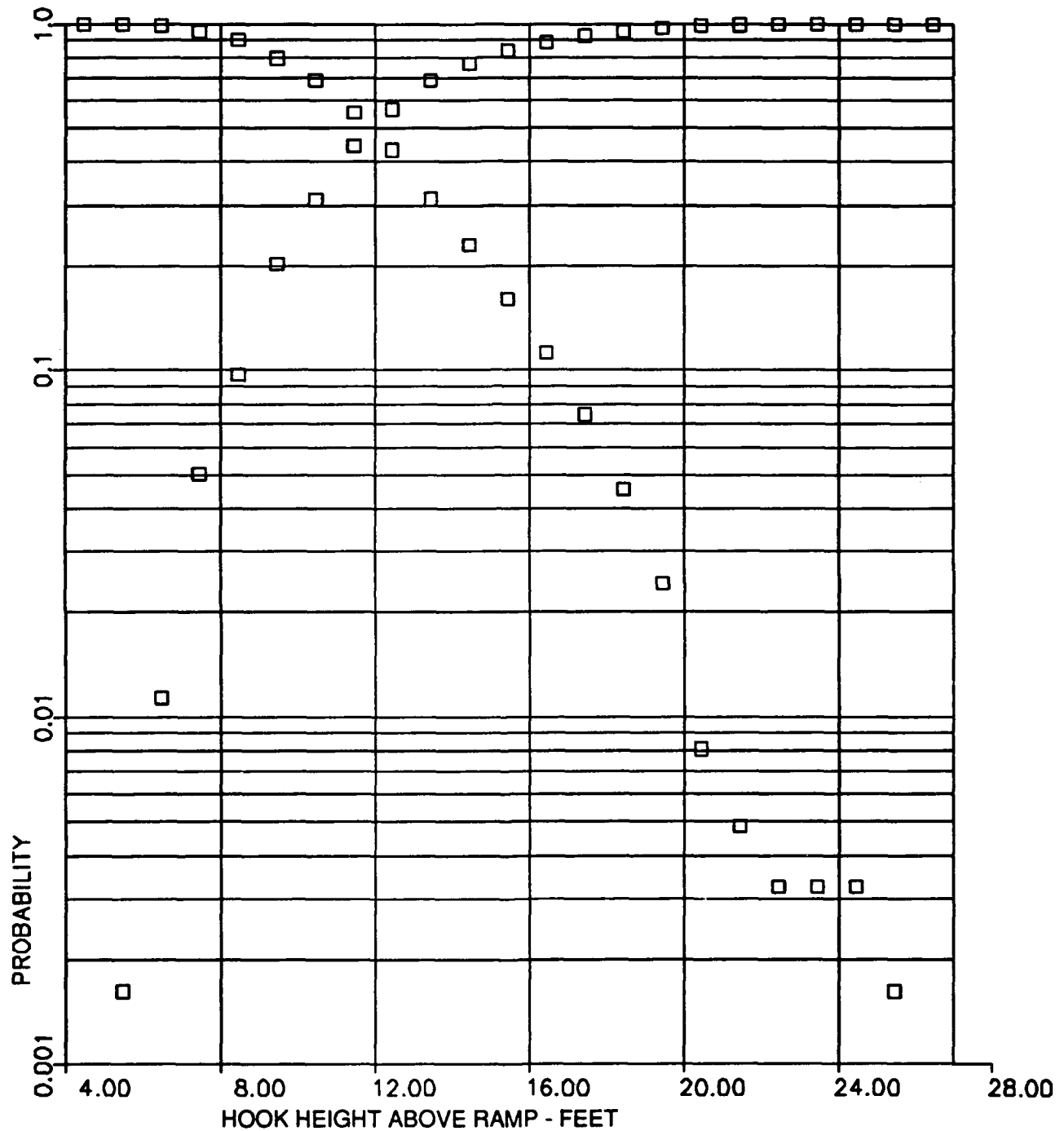


FIGURE R-41 PROBABILITY DISTRIBUTION OF ARRESTMENT  
HOOK HEIGHT ABOVE CARRIER RAMP

MODEL TA-4      AIRCRAFT      USS ENTERPRISE      (CVN-65)  
DAY LANDINGS  
FRESNEL LENS      SETTING= 3.50 DEGREES  
N= 635       $\bar{X}$ = 113.42 KNOTS      A3= 0.49  
S= 6.68 KNOTS      A4= 8.05

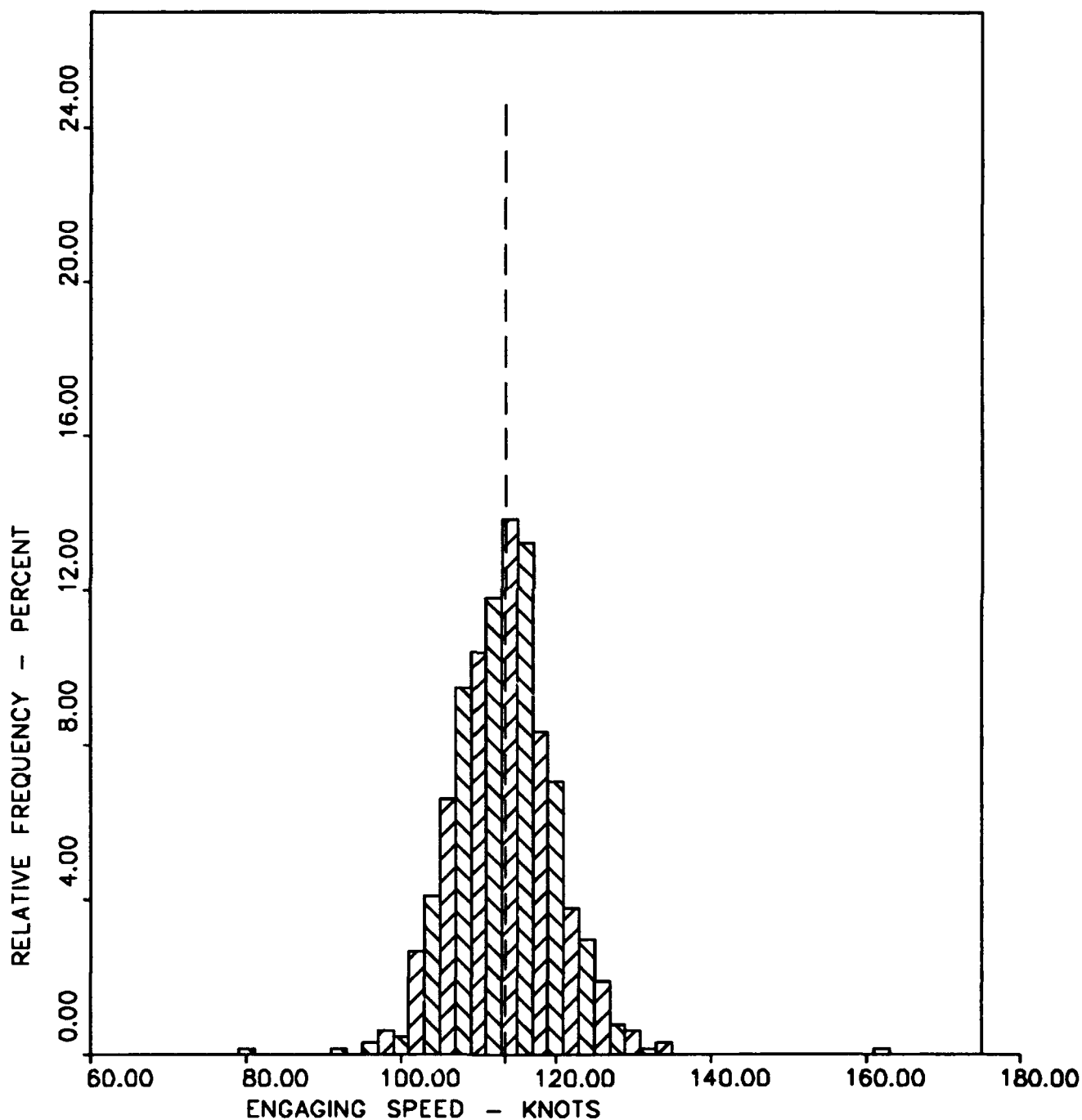


FIGURE R-42      FREQUENCY DISTRIBUTION OF AIRCRAFT  
ENGAGING SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

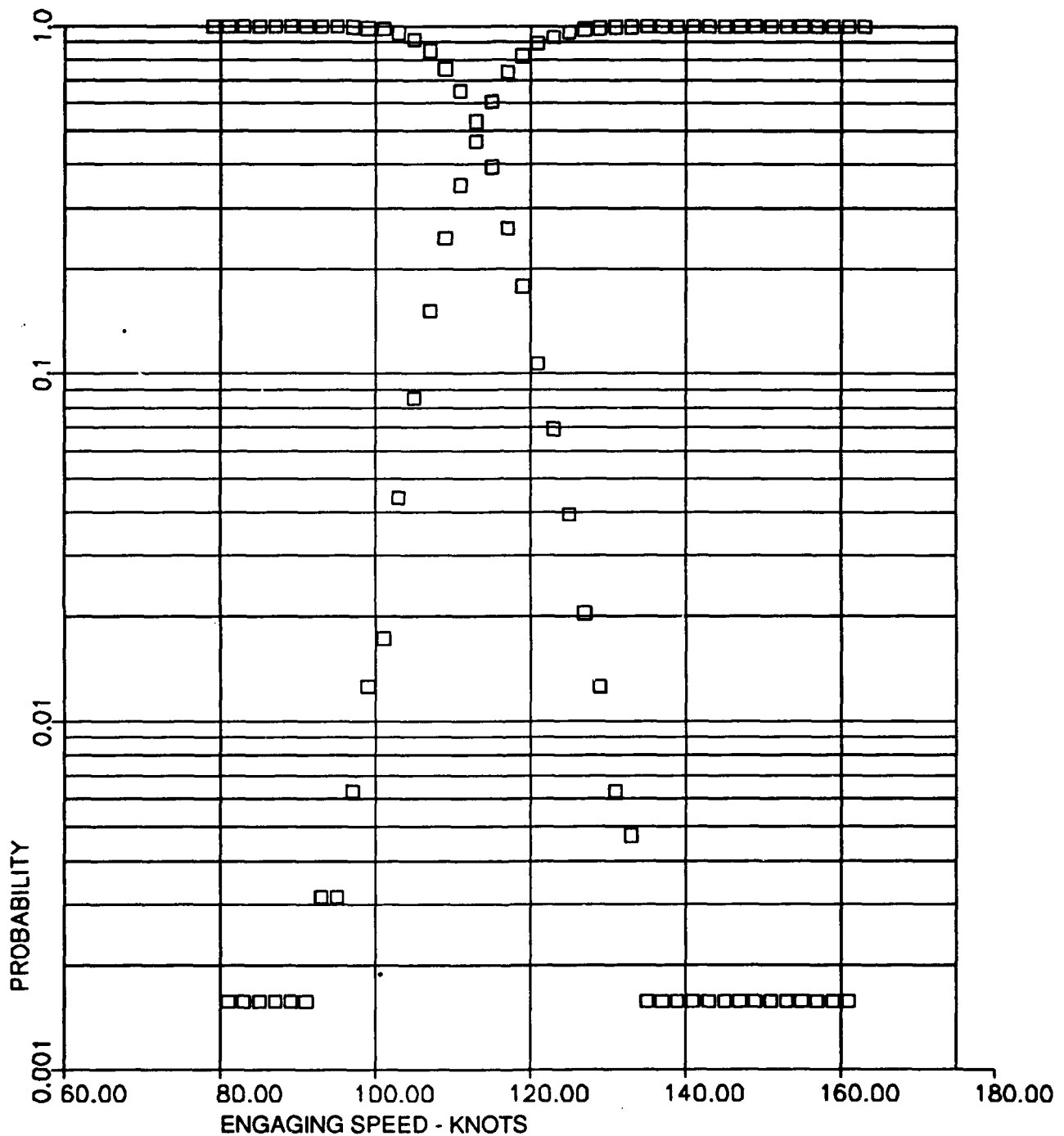
 $\bar{X}$ = 113.42 KNOTS

S= 6.68 KNOTS

CURVE FITTED - PEARSON TYPE III

A3= 0.49

A4= 8.05

FIGURE R-43 PROBABILITY DISTRIBUTION OF ENGAGING  
SPEED AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 624

AIRCRAFT

USS ENTERPRISE

(CVN-65)

SETTING= 3.50 DEGREES

 $\bar{X}$ = 128.77 KNOTS

S= 1.47 KNOTS

A3=-1.10

A4= 3.30

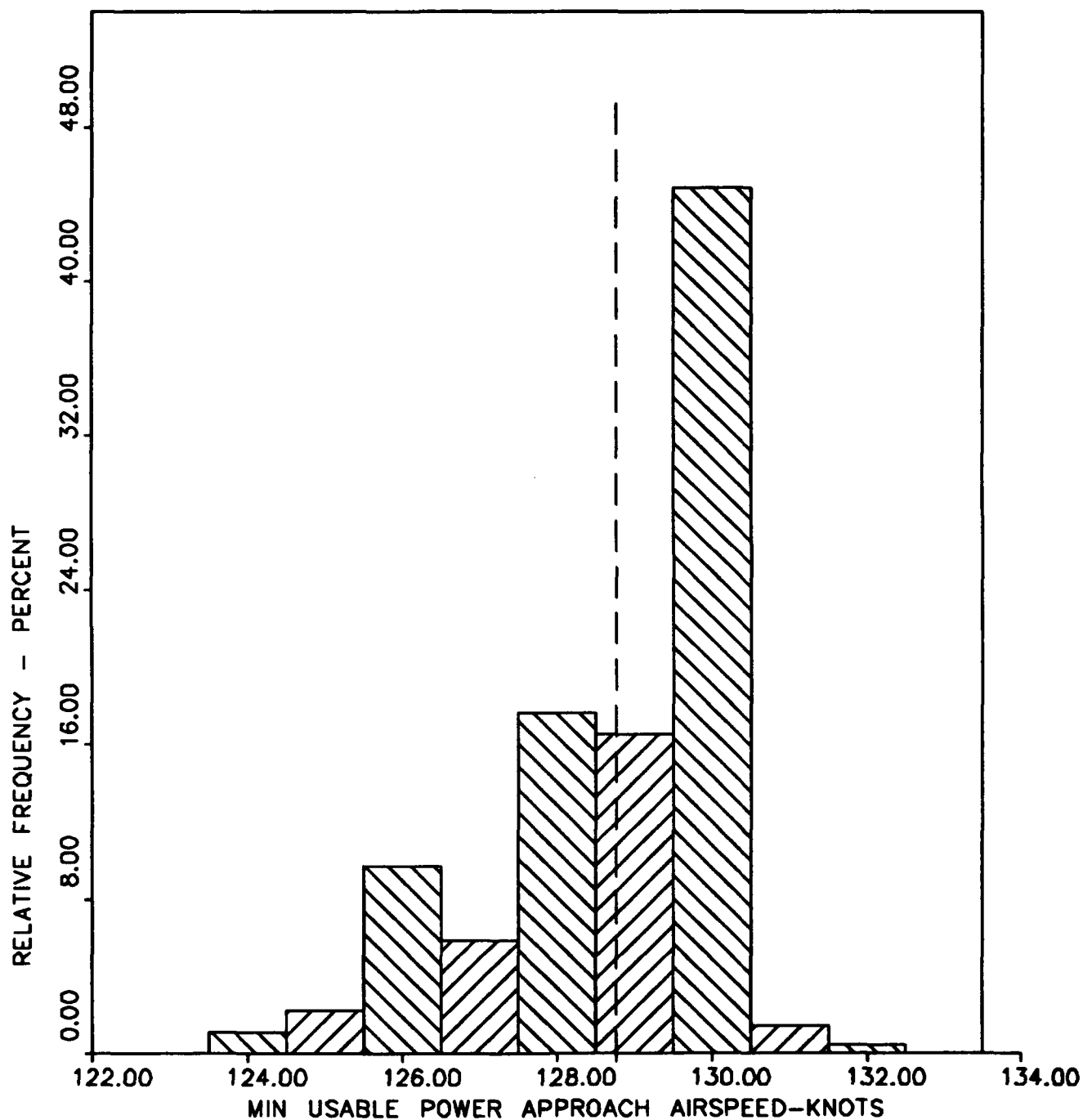


FIGURE R-44 FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED

MODEL TA-4      AIRCRAFT      USS ENTERPRISE      (CVN-65)  
DAY LANDINGS  
FRESNEL LENS SETTING= 3.50 DEGREES  
N= 624       $\bar{X}$ = 1.09      A3= 0.46  
S= 0.05      A4= 6.01

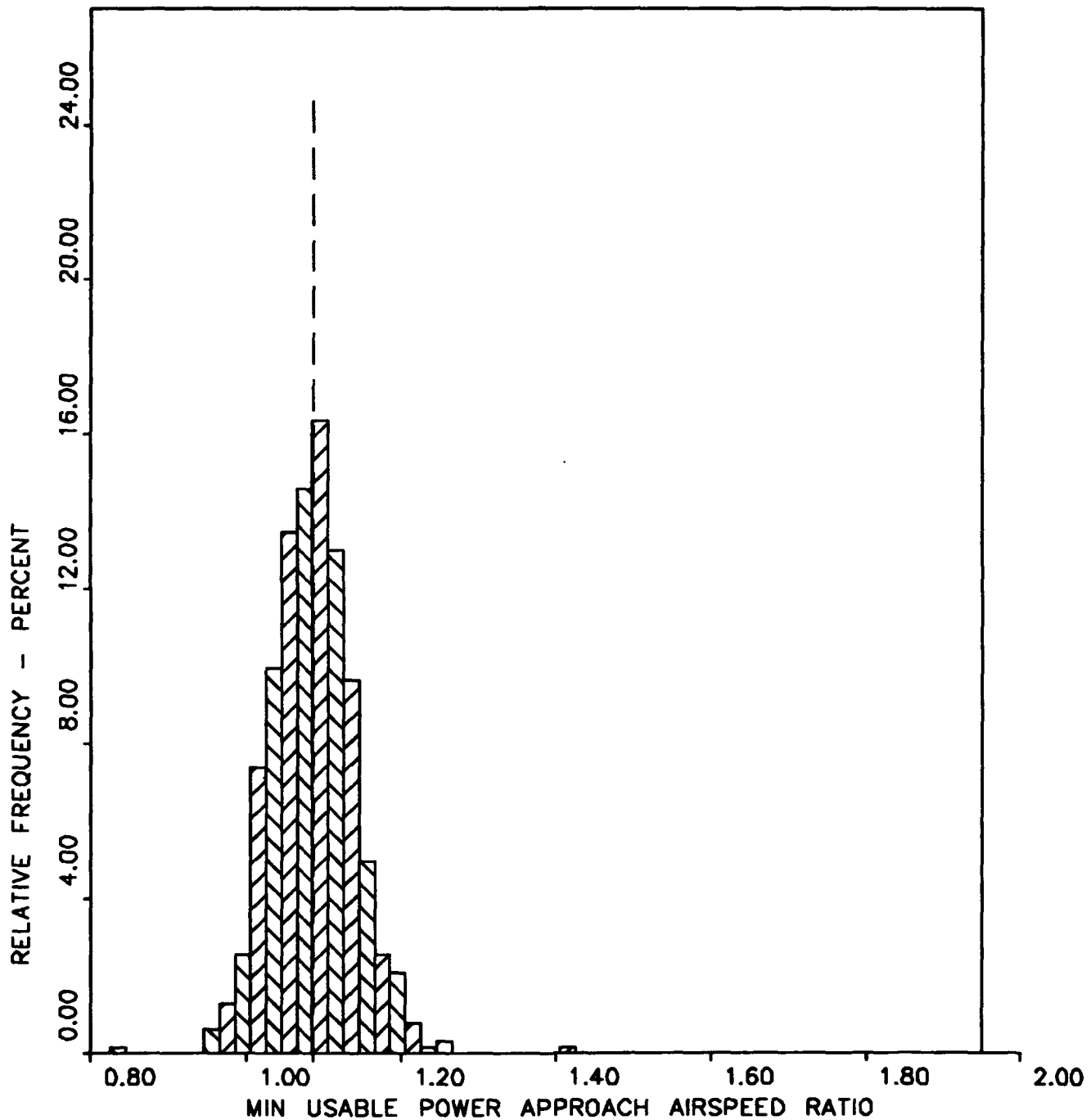


FIGURE R-45      FREQUENCY DISTRIBUTION OF MINIMUM  
USABLE POWER APPROACH AIRSPEED RATIO - FILM

MODEL TA-4      AIRCRAFT      USS ENTERPRISE      (CVN-65)  
DAY LANDINGS  
FRESNEL LENS SETTING= 3.50 DEGREES  
N= 553       $\bar{x}$ = 0.15 DEGREES  
             S= 1.17 DEGREES

A3= 0.27  
A4= 3.28

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

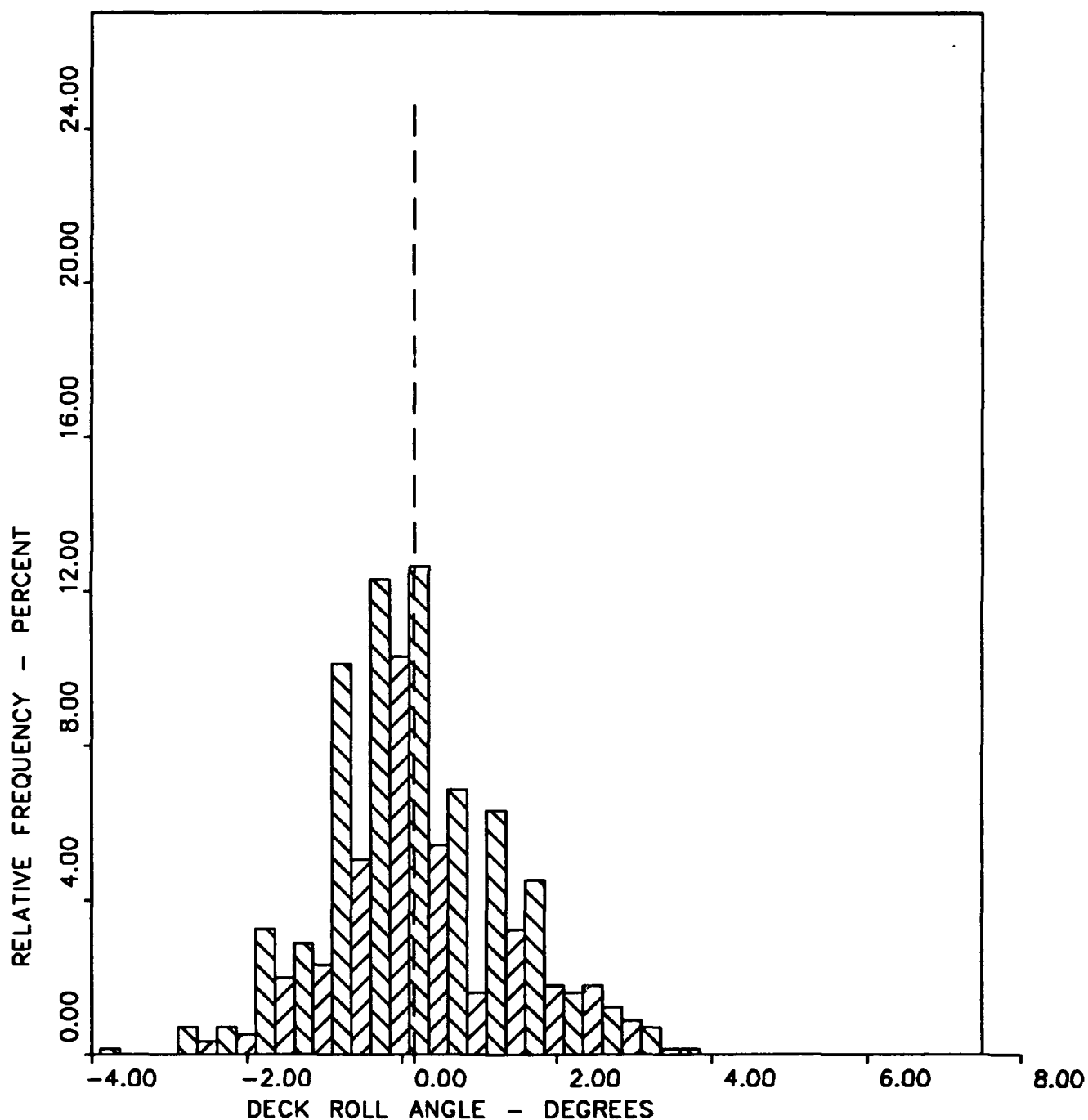


FIGURE R-46      FREQUENCY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 553  $\bar{X}$ = 0.15 DEGREES

S= 1.17 DEGREES

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE PORT SIDE OF DECK UP

A3= 0.27

A4= 3.28

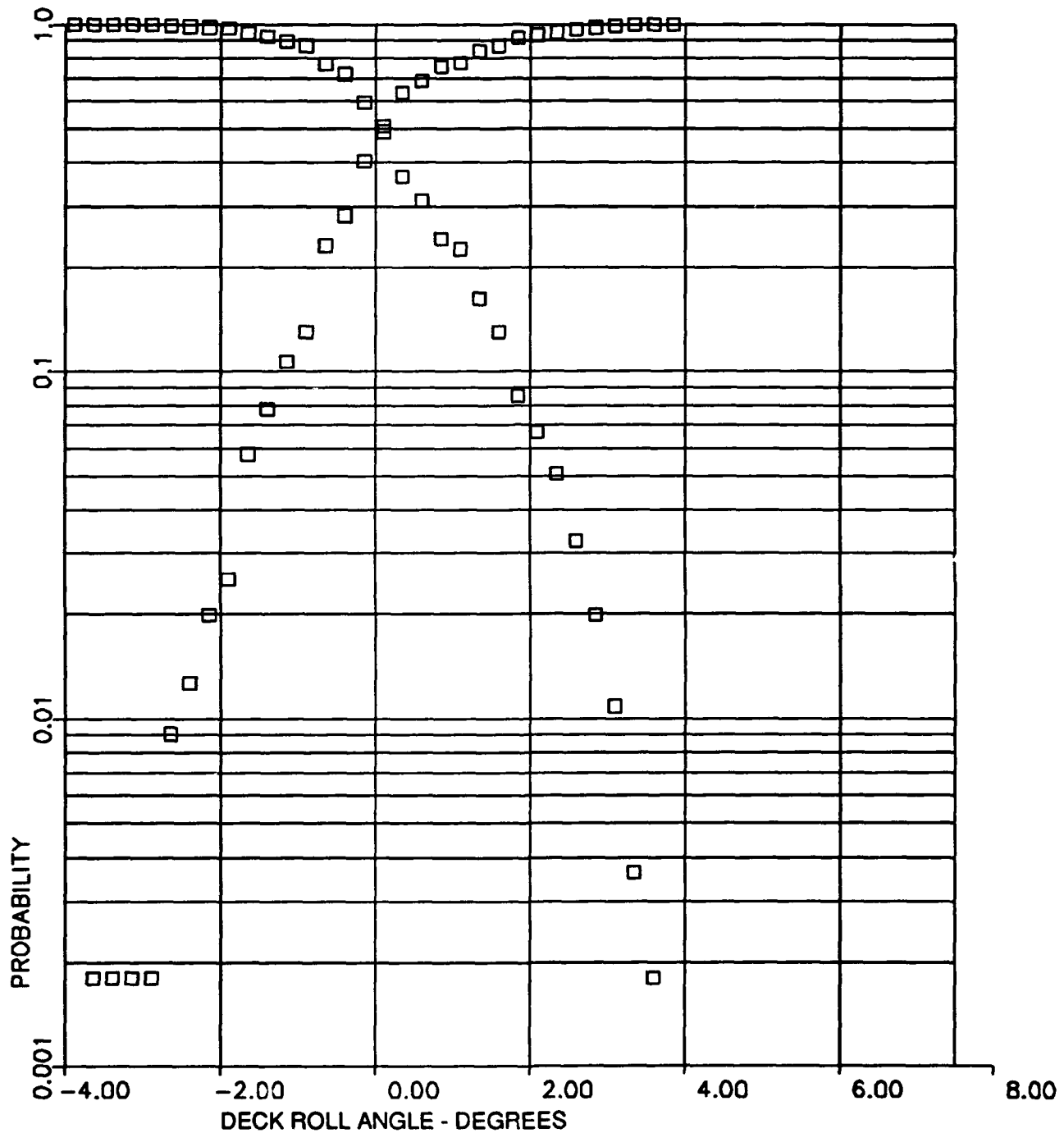


FIGURE R-47 PROBABILITY DISTRIBUTION OF  
CARRIER DECK ROLL MOTION



MODEL TA-4      AIRCRAFT      USS ENTERPRISE      (CVN-65)  
DAY LANDINGS  
FRESNEL LENS      SETTING= 3.50 DEGREES  
N= 553       $\bar{X}$ =-0.28 DEGREES      A3= 0.40  
S= 0.20 DEGREES      A4= 3.54

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

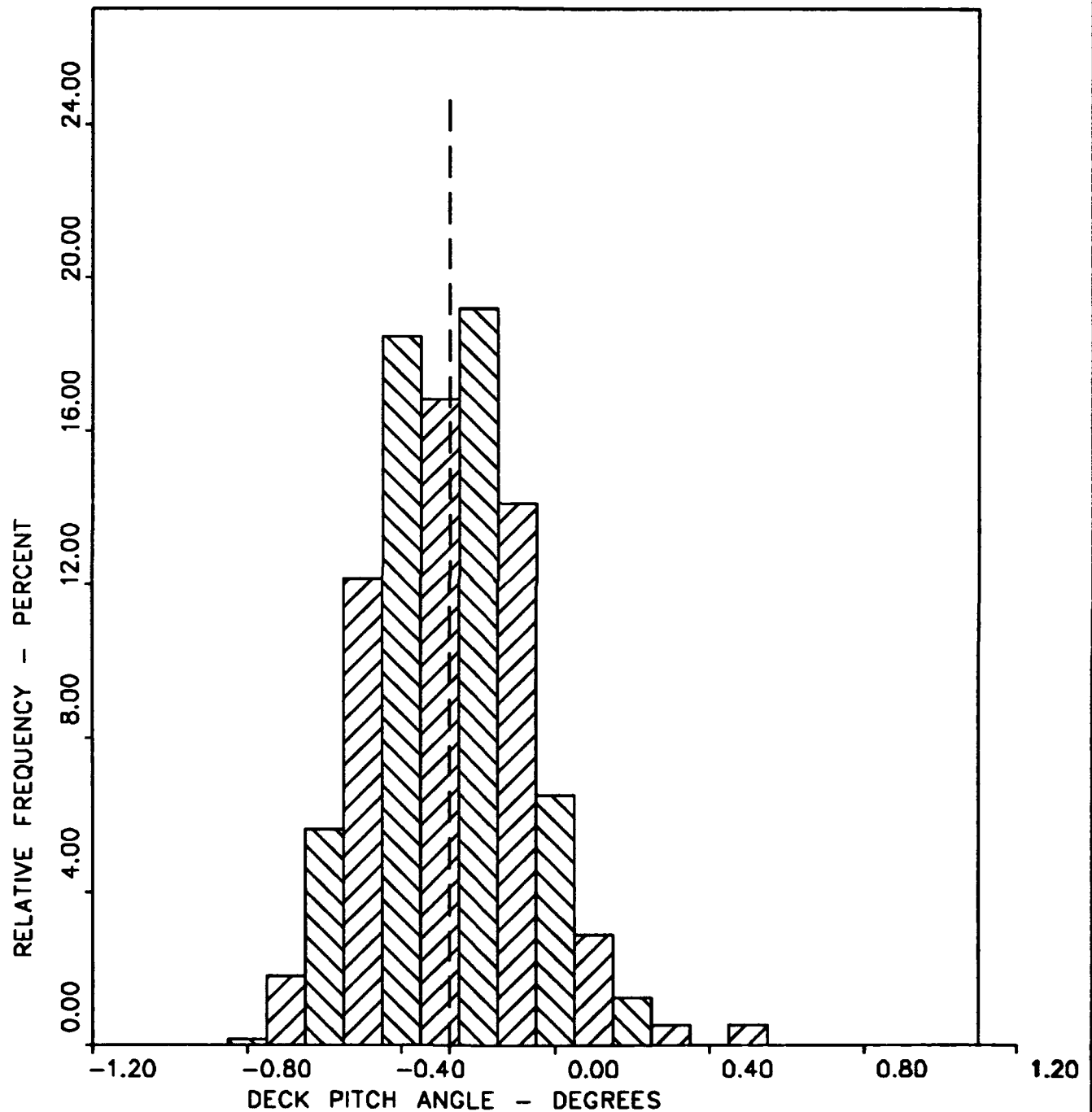


FIGURE R-48      FREQUENCY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 553

 $\bar{X} = -0.28$  DEGREES

S= 0.20 DEGREES

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE BOW OF SHIP DOWN FROM HORIZONTAL

A3= 0.40

A4= 3.54

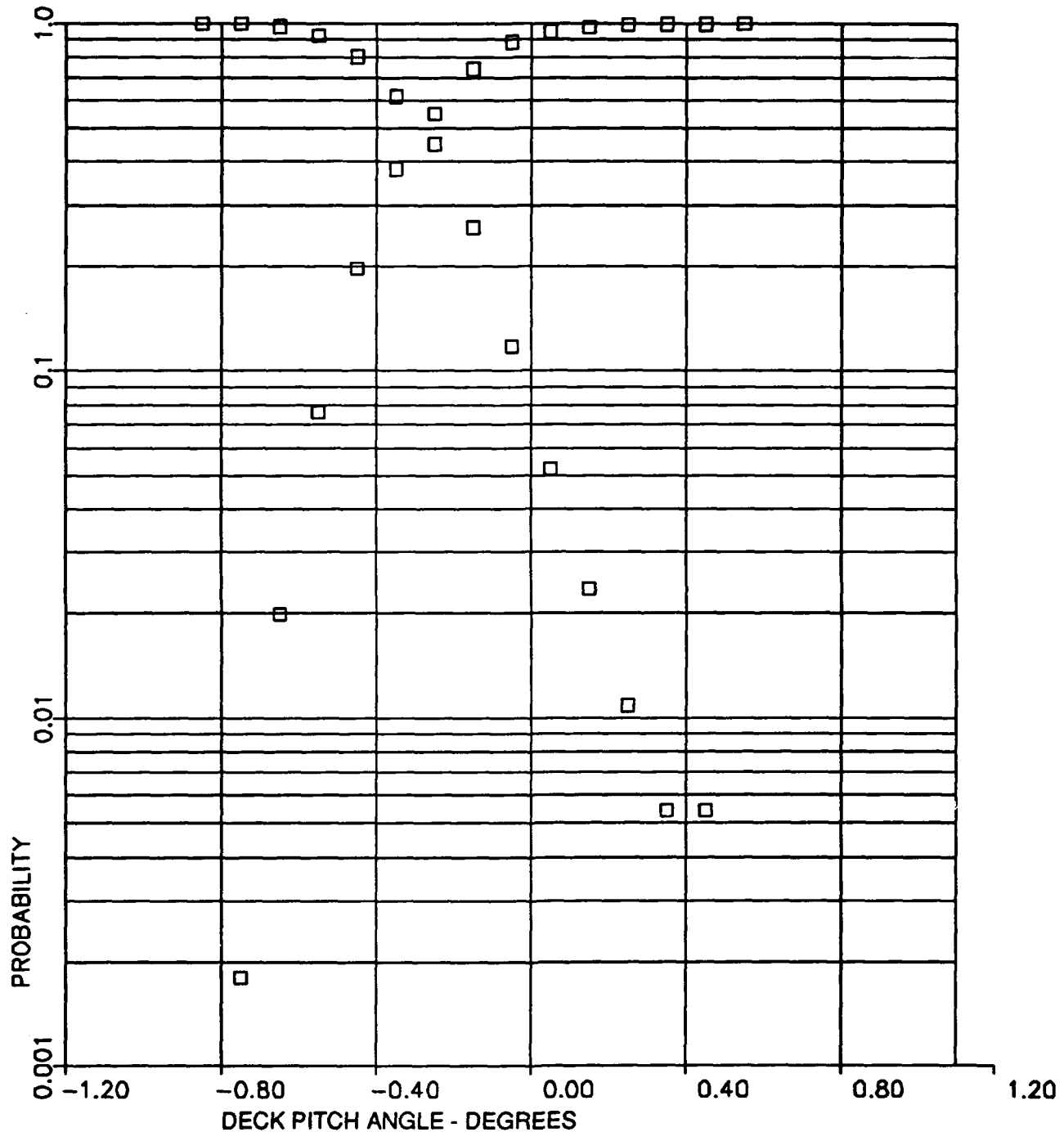


FIGURE R-49 PROBABILITY DISTRIBUTION OF  
CARRIER DECK PITCH MOTION

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 624

 $\bar{X}$ = 14061.70 POUNDS

S= 319.69 POUNDS

A3=-1.08

A4= 3.25

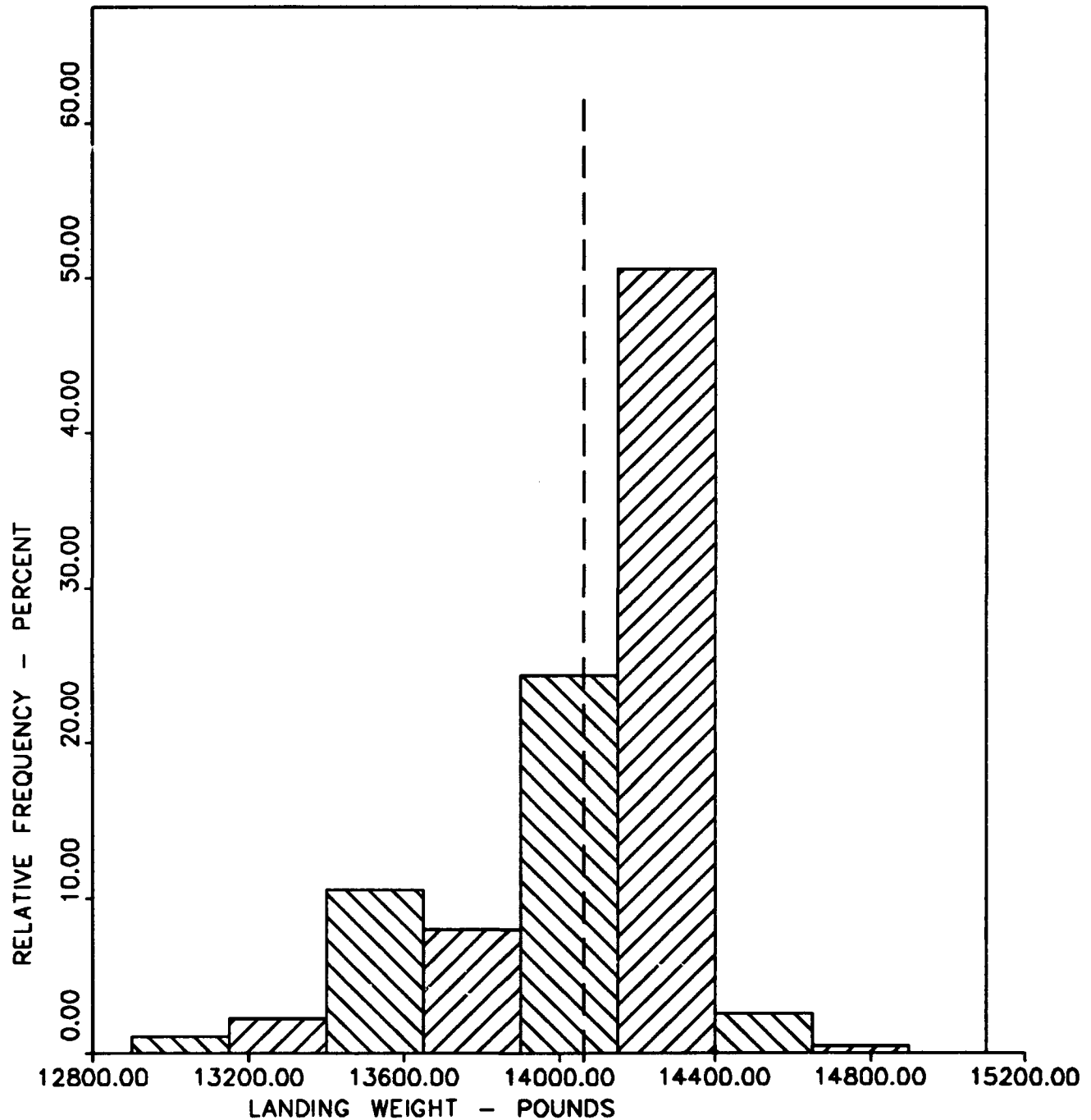


FIGURE R-50 FREQUENCY DISTRIBUTION OF  
AIRCRAFT LANDING WEIGHT

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

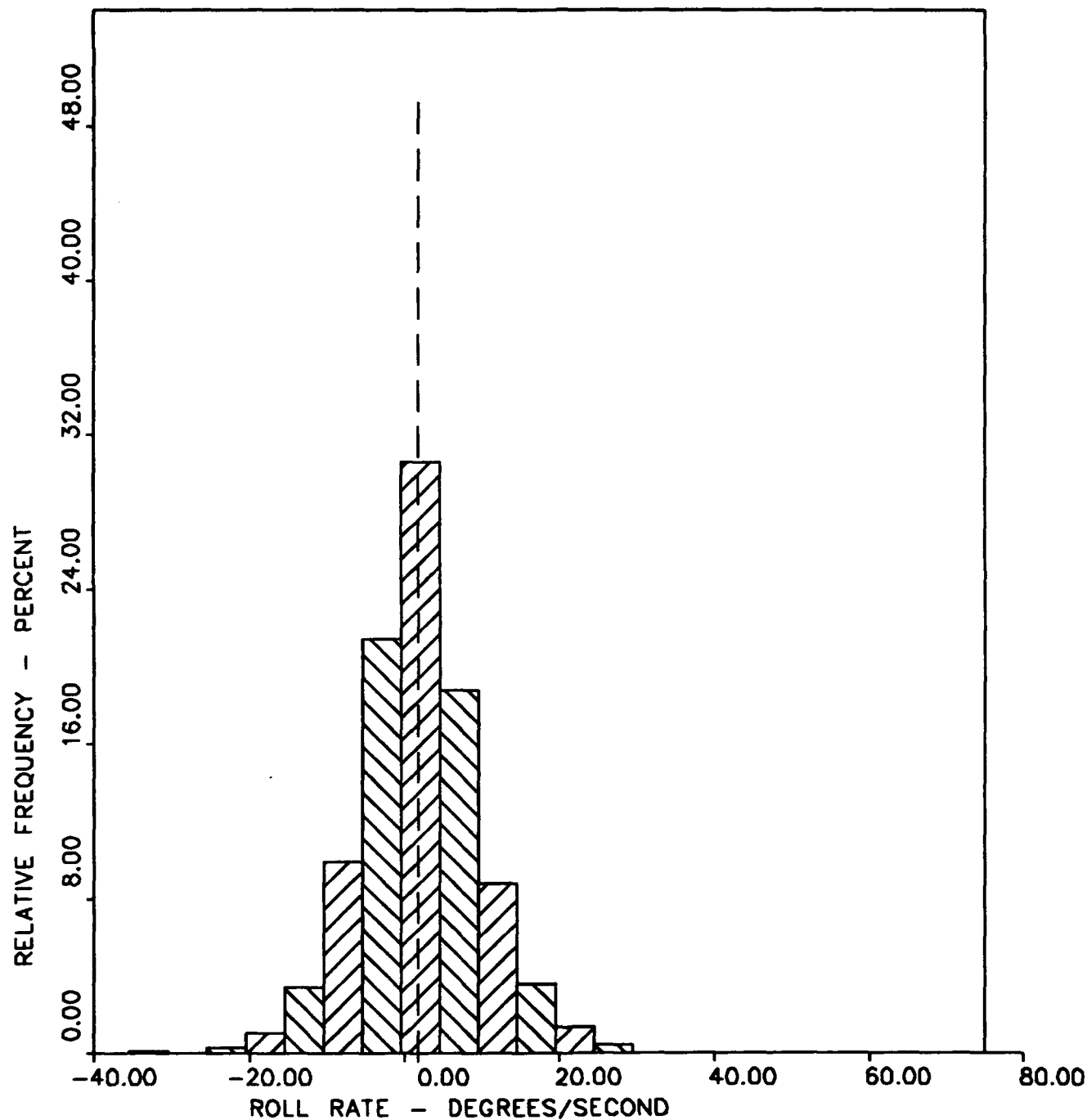
 $\bar{X}$ = 1.69 DEG/SEC

S= 7.80 DEG/SEC

A3= 0.05

A4= 4.01

POSITIVE VALUES INDICATE STARBOARD WING DOWN

FIGURE R-51 FREQUENCY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 1.69 DEG/SEC

S= 7.80 DEG/SEC

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE STARBOARD WING DOWN

A3= 0.05

A4= 4.01

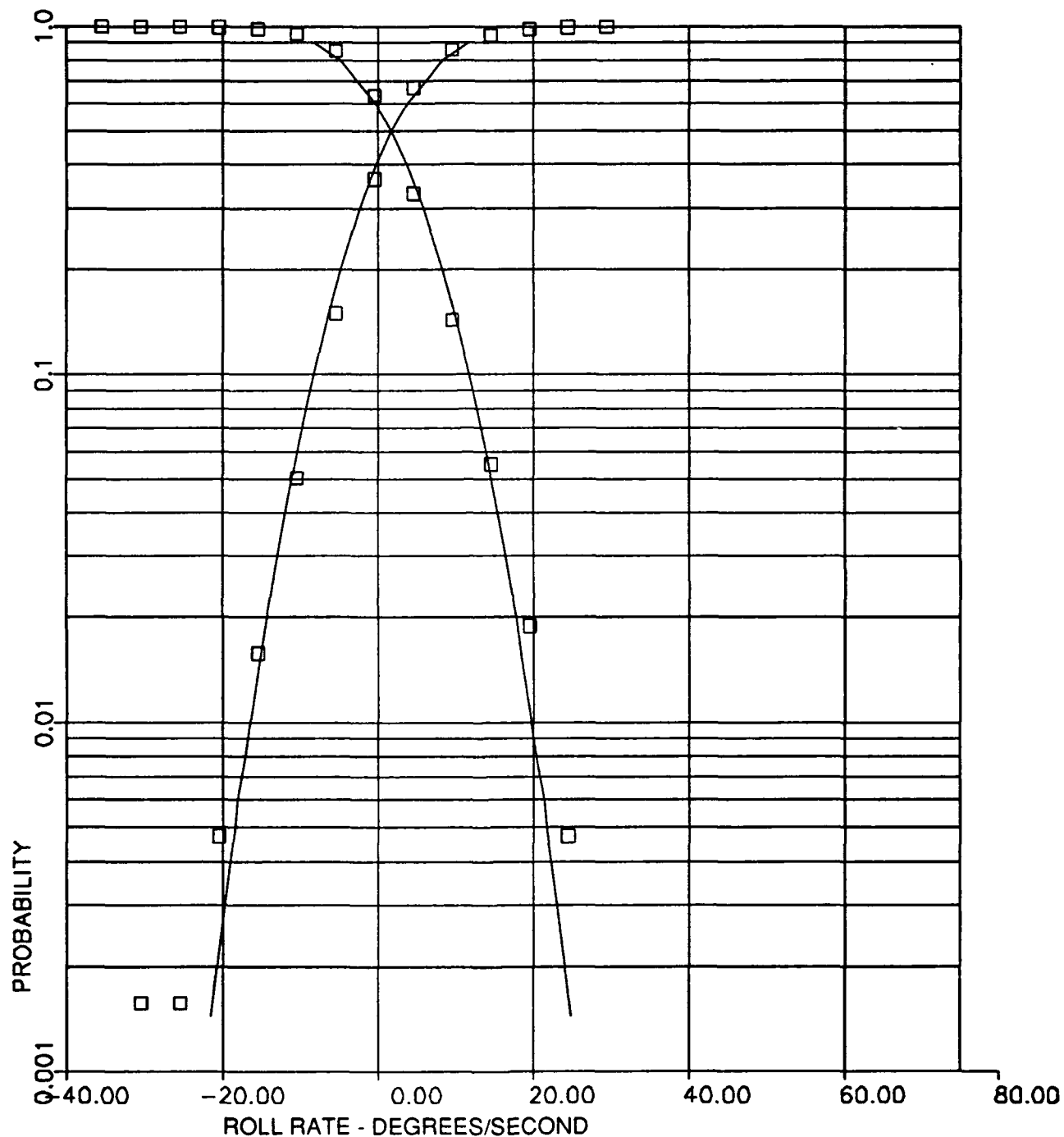


FIGURE R-52 PROBABILITY DISTRIBUTION OF ROLL RATE  
AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4  
DAY LANDINGS  
FRESNEL LENS  
N= 635

AIRCRAFT

USS ENTERPRISE

(CVN-65)

SETTING= 3.50 DEGREES  
 $\bar{X}$ = 3.75 DEG/SEC  
S= 3.27 DEG/SEC

A3= 0.43

A4= 4.61

POSITIVE VALUES INDICATE NOSE UP ATTITUDE  
MEASURED FROM HORIZONTAL TO FRL

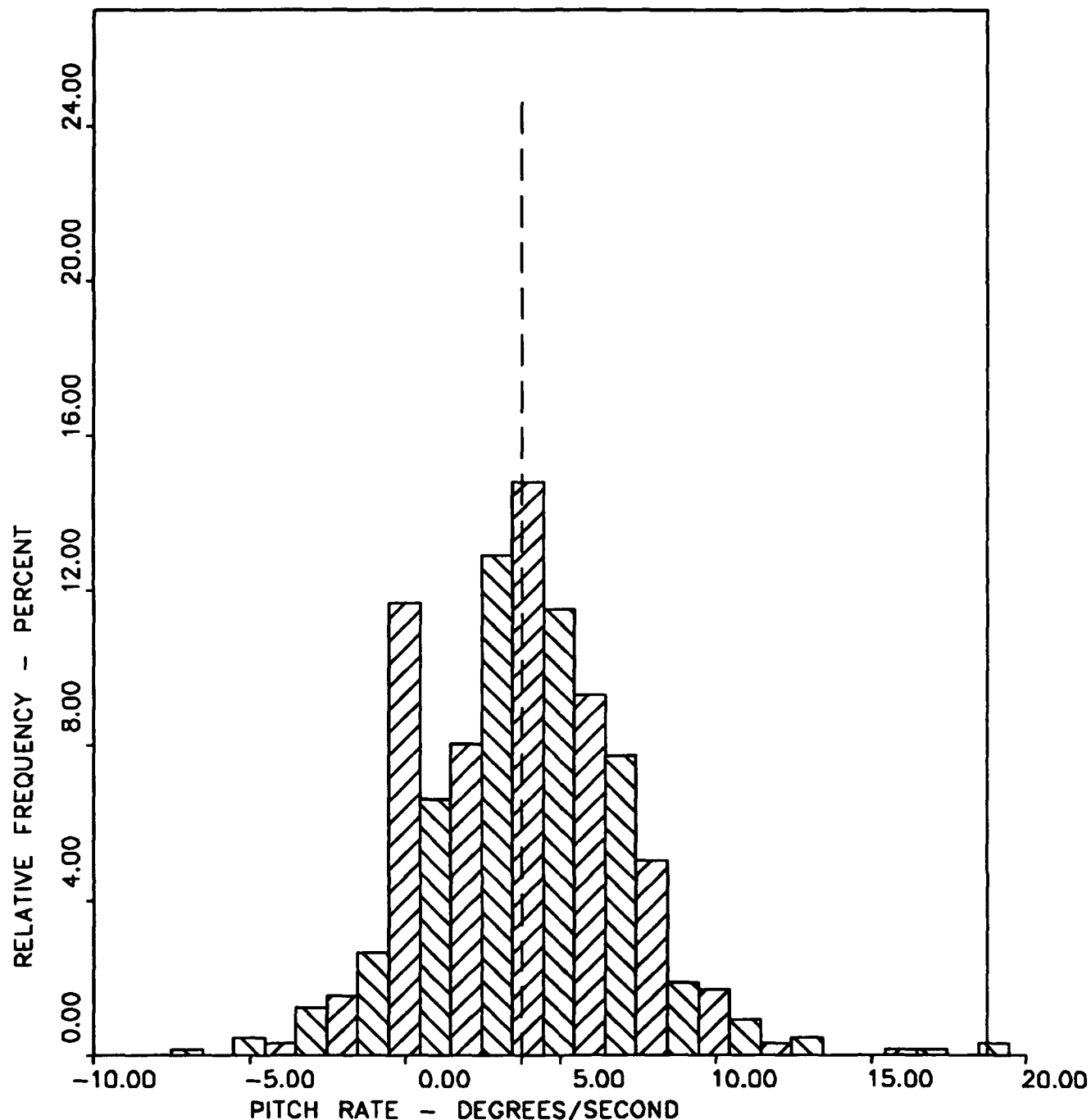


FIGURE R-53 FREQUENCY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 3.75 DEG/SEC

S= 3.27 DEG/SEC

A3= 0.43

A4= 4.61

CURVE FITTED - PEARSON TYPE III

POSITIVE VALUES INDICATE NOSE UP ATTITUDE

MEASURED FROM HORIZONTAL TO FRL

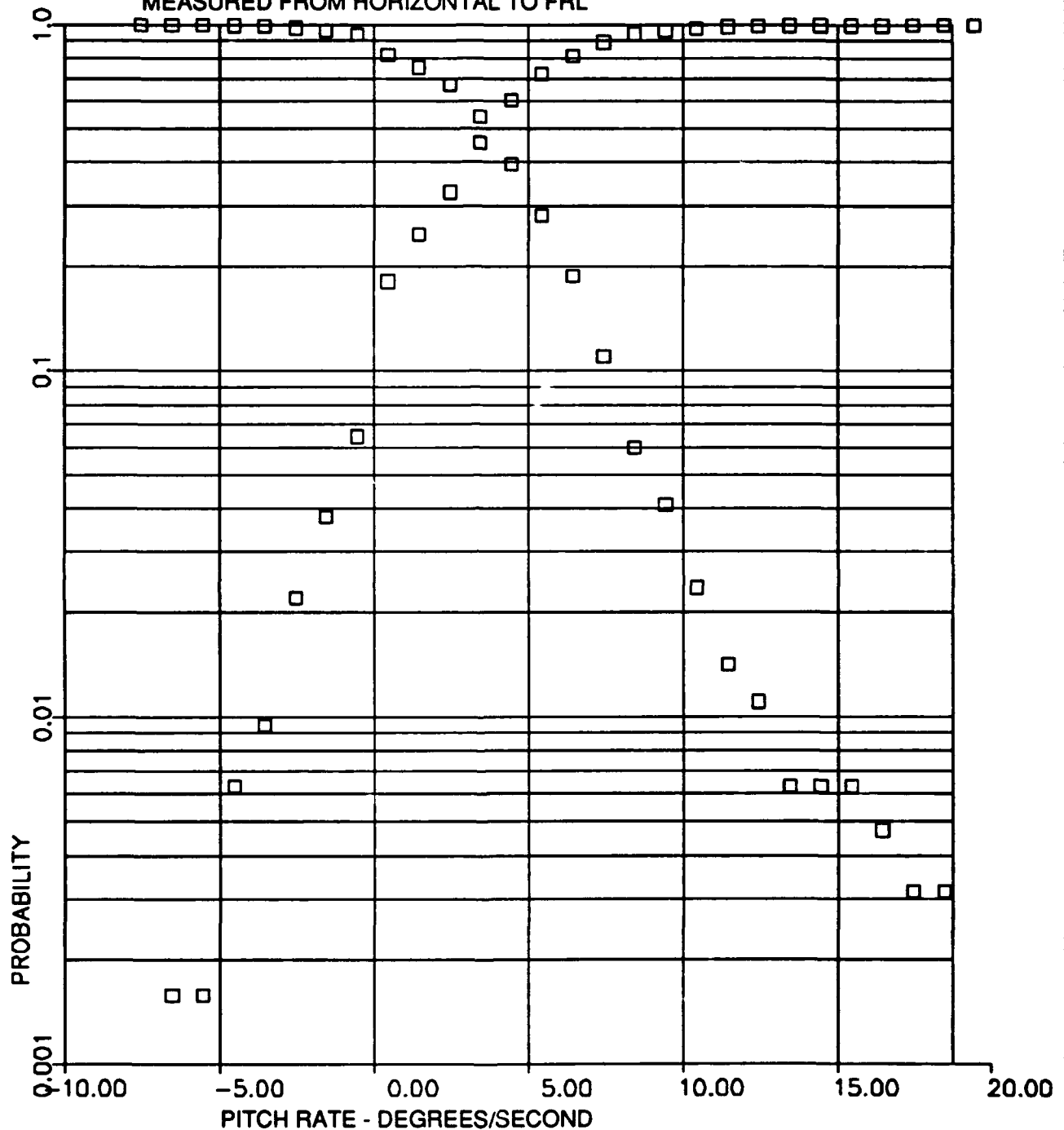


FIGURE R-54 PROBABILITY DISTRIBUTION OF PITCH  
RATE AT FIRST MAIN WHEEL TOUCHDOWN

MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ =-3.83 DEGREES

S= 1.89 DEGREES

A3= 0.07

A4= 6.23

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

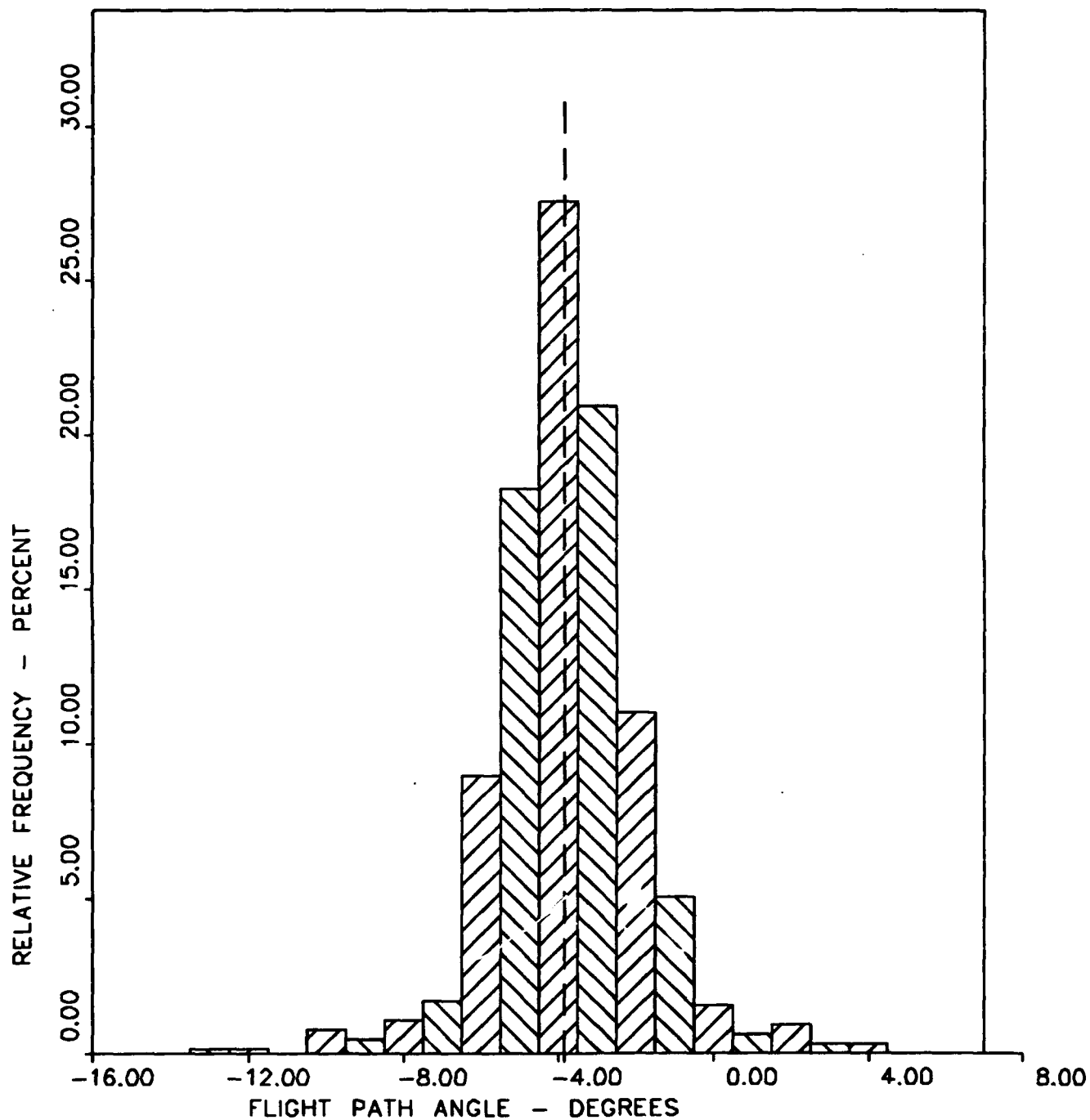


FIGURE R-55 FREQUENCY DISTRIBUTION OF AIRCRAFT  
FLIGHT PATH ANGLE AT TOUCHDOWN



MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X} = -3.83$  DEGREES

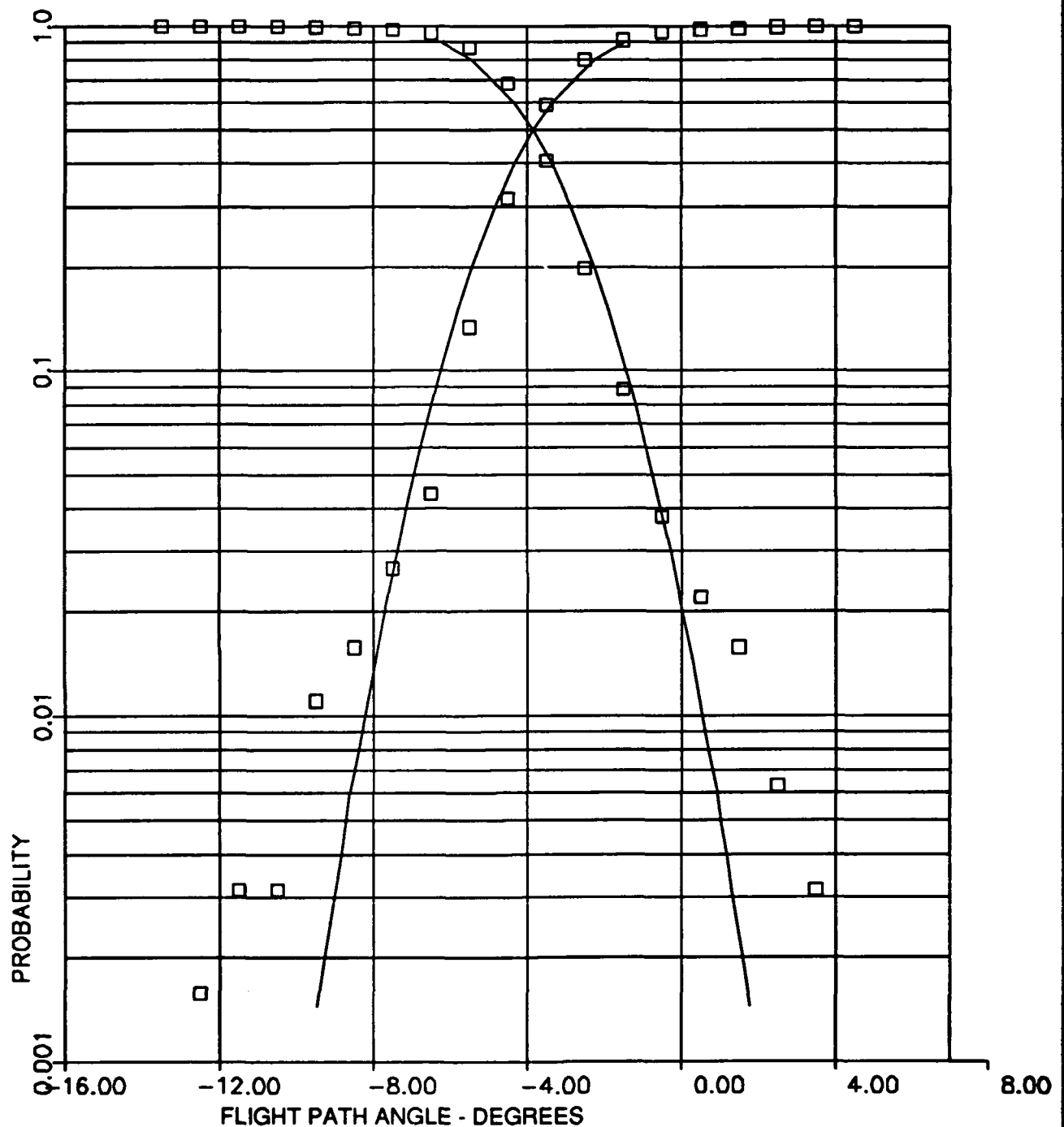
S= 1.89 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE F.P.A. LEFT OF RUNWAY CENTERLINE

A3= 0.07

A1= 6.23



MODEL TA-4

AIRCRAFT

USS ENTERPRISE

(CVN-65)

DAY LANDINGS

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

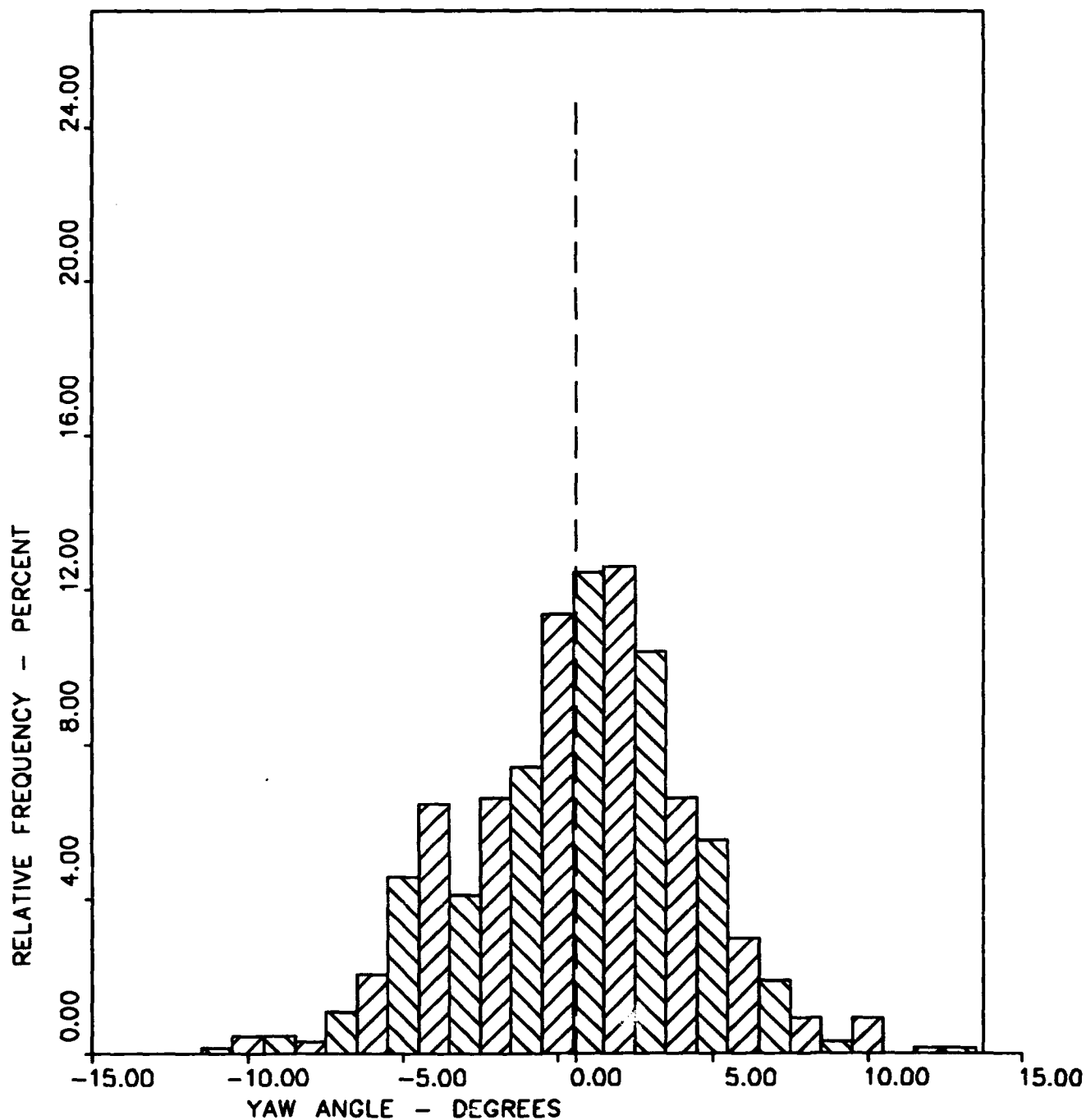
 $\bar{X}$ = 0.58 DEGREES

S= 3.64 DEGREES

A3=-0.13

A4= 3.21

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

FIGURE R-57 FREQUENCY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

MODEL TA-4  
DAY LANDINGS

AIRCRAFT

USS ENTERPRISE (CVN-65)

FRESNEL LENS SETTING= 3.50 DEGREES

N= 635

 $\bar{X}$ = 0.58 DEGREES

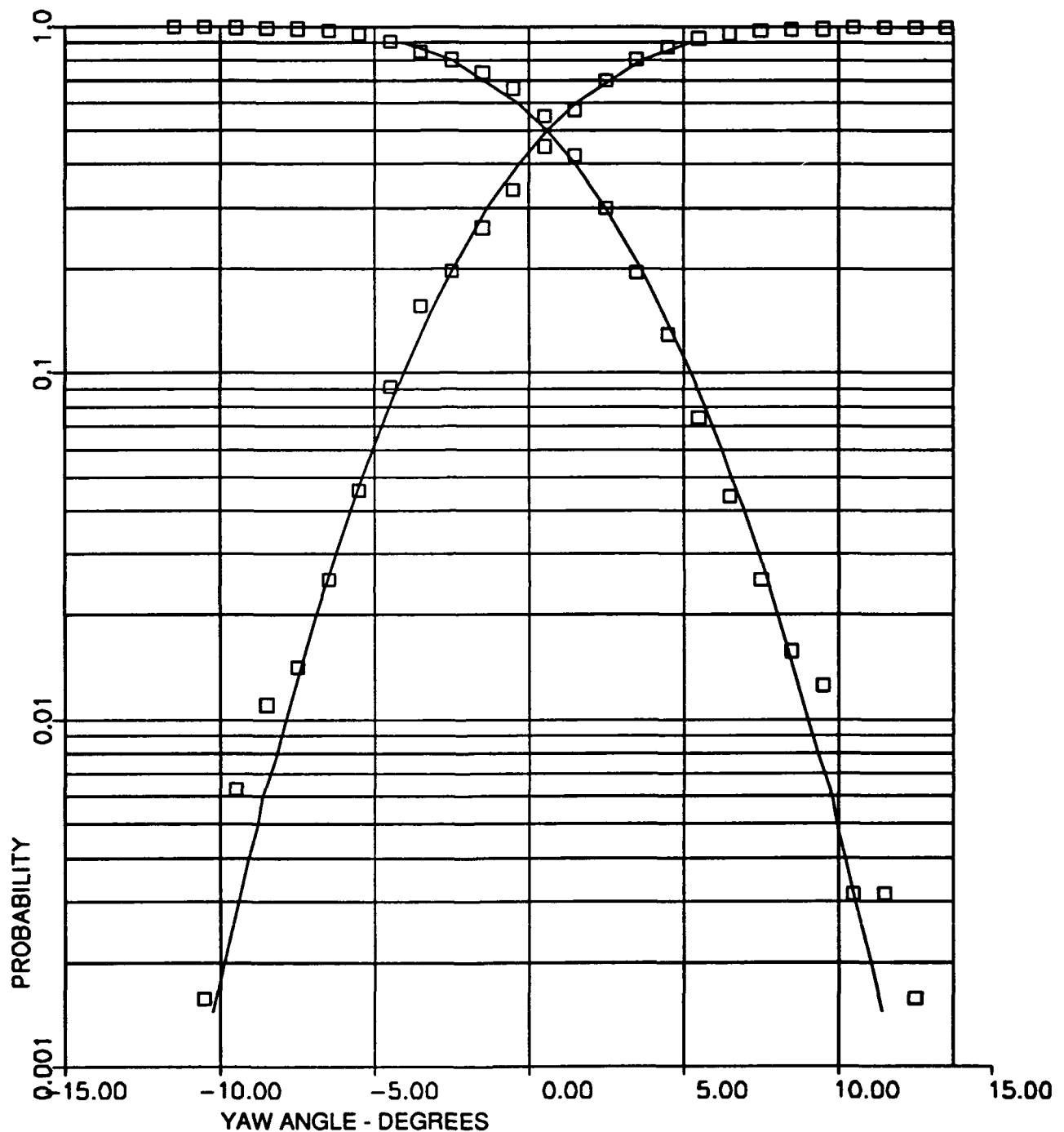
S= 3.64 DEGREES

CURVE FITTED - NORMAL

POSITIVE VALUES INDICATE NOSE LEFT ATTITUDE

A3=-0.13

A4= 3.21

FIGURE R-58 PROBABILITY DISTRIBUTION OF  
AIRCRAFT YAW ANGLE

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